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ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 66

DATE: Monday, September 30, 1991


BEFORE:

| | |
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| HON. MR. JUSTICE E. SAUNDERS | Chairman |
| DR. G. CONNELL | Member |
| MS. G. PATTERSON | Member |

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
on Monday, the 30th day of September,
1991, commencing at 10:00 a.m.

VOLUME 66

B E F O R E :

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| THE HON. MR. JUSTICE E. SAUNDERS | Chairman |
| DR. G. CONNELL | Member |
| MS. G. PATTERSON | Member |

S T A F F :

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| MR. R. NUNN | Counsel/Manager, Information Systems |
| MS. C. MARTIN | Administrative Coordinator |
| MS. G. MORRISON | Executive Coordinator |

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| | | |
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| L. FORMUSA |) | |
| B. HARVIE |) | |
| J.F. HOWARD, Q.C. |) | |
| J. LANE |) | |
| | | |
| J.C. SHEPHERD |) | IPPSO |
| I. MONDROW |) | |
| J. PASSMORE |) | |
| | | |
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| A. MARK |) | ASSOCIATION |
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| | | |
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| M. IZZARD |) | ASSOCIATION, INTERNATIONAL |
| | | INSTITUTE OF CONCERN FOR |
| | | PUBLIC HEALTH |
| | | |
| G. GRENVILLE-WOOD | | SESCI |
| | | |
| D. ROGERS | | ONGA |

A P P E A R A N C E S
(Cont'd)

| | | |
|-----------------|---|--|
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(Cont'd)

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| D. HAMER |) | |
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| G. MITCHELL |) | SOCIETY OF AECL PROFESSIONAL EMPLOYEES |

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1 ---On resuming at 10:03 a.m.

2 THE REGISTRAR: This hearing is now in
3 session. Be seated, please.

4 THE CHAIRMAN: Mr. Rosenberg?

5 MR. ROSENBERG: Thank you, Mr. Chairman.

6 Mr. Chairman, I have distributed an
7 interrogatory this morning to the Hydro panel and I
8 just want to make sure that you have it as well. It's
9 4.12.106A

10 THE REGISTRAR: Next exhibit number, Mr.
11 Chairman is 261.13.

12 THE CHAIRMAN: Thank you.

13 ---EXHIBIT NO. 261.73: Interrogatory No. 4.12.106A.

14 PAUL JONATHAN BURKE,
15 AMIR SHALABY,
16 MARION ELIZABETH FRASER,
17 LYN DOUGLAS WILSON,
WILLIAM OSBORNE HARPER,
IAN DUNCAN MacLELLAN; Resumed

18 CROSS-EXAMINATION BY MR. ROSENBERG (cont'd):

19 Q. Mr. Harper?

20 MR. HARPER: A. Yes?

21 Q. I am going to begin with you this
22 morning and use this new interrogatory.

23 Mr. Harper, you indicated last Thursday
24 that you could not be certain of the net effect that
25 current time-of-use rates will have on total energy

1 consumption; is that correct?

2 A. Yes, in terms of what will actually
3 take place.

4 Q. And the reason for this lack of
5 certainty is the fact that the rates have only recently
6 been implemented and there is a lack of adequate data
7 for the analysis; is that correct?

8 A. Yes.

9 Q. First of all, I will ask you to go to
10 Interrogatory 4.12.106A which was an interrogatory from
11 the CAC to Hydro. Have you had a chance to look over
12 that prior?

13 A. Yes, just in the last five minutes.

14 Q. And attached to that interrogatory is
15 a study entitled "Residential Time-of-use Rates, Final
16 Results Using the Rotterdam Model, PTA-90-4", and it's
17 dated July 1990. Are you familiar with this study?

18 A. Yes.

19 Q. This is a study prepared in-house by
20 Ontario Hydro?

21 A. Yes. It's one of the analyses we
22 were doing of the results of our residential
23 time-of-use rate experiments.

24 Q. And the people listed on this
25 covering page, Evelyn Lawson, Neil Mather and Vicky

1 Sharpe, they are all Ontario Hydro employees?

2 A. Yes, they are.

3 Q. And what was attached to the
4 interrogatory was this executive summary and a one page
5 table. I would like to you turn to the executive
6 summary.

7 A. Right.

8 Q. Am I correct in characterizing this
9 study as a detailed study conducted over six years and
10 designed to determine the responsiveness of residential
11 consumers to time-of-use rates?

12 A. Right. The experiment itself covered
13 a six-year period. This is the results of one
14 analytical exercise we were going through in order to
15 try to establish what is the customer response to
16 time-of-use rates.

17 Q. Am I also correct in characterizing
18 this fact that with very few exceptions time-of-use
19 rates have not been implemented in the residential
20 sector; is that correct?

21 A. In general across North America or
22 within Canada?

23 Q. Within Ontario.

24 A. No, you're right, they have not.

25 Q. But, this study was able to come to

1 certain conclusions. I turn to the first paragraph and
2 I would just like to read the first paragraph:

3 "After observing residential
4 customers' responses to TOU (Time-of-Use)
5 rates for a full five years, plus one
6 year before TOU, we have information to
7 make conclusive statements about the
8 effects of TOU of residential
9 consumption. Analysis shows a definite
10 and not insignificant effect of
11 residential TOU rates."

12 Then continuing on with the last
13 sentence:

14 "While on TOU rates customers
15 increased their electricity consumption
16 by up to 3 per cent more than customers
17 not on TOU."

18 Do you agree with the conclusions in this
19 study?

20 A. Yes, I agree that that's the results
21 of what came out of the analysis of the time-of-use
22 rate experiment.

23 I think as I indicated in an earlier
24 cross-examination, we are also analyzing the same data
25 set using a different model to try and see whether

1 these results can be verified using a different
2 analytical approach.

3 Q. I take it the conclusion of this
4 study was that it was conclusive that the net effect of
5 time-of-use rates in the residential sector would be to
6 increase total energy consumption?

7 A. That was the findings of this study,
8 yes.

9 Q. But there have been no studies that
10 have found -- let me ask you this indirectly.

11 With respect to the studies you are
12 currently undertaking and the data you are currently
13 working on, to the best of your abilities would you
14 conclude at this time that they are showing that
15 directionally time-of-use rates in the industrial and
16 commercial sectors are increasing net energy
17 consumption?

18 A. Again, as I was saying yesterday --
19 excuse me, on Thursday, I believe it's too early to
20 make any definitive statement on that.

21 The experience we have seen in the
22 commercial sector is that there seems to be very little
23 opportunity for load shifting and that what we may see
24 more be there than anything else is a price response to
25 the higher rates in peak period and therefore perhaps

1 an overall net reduction in energy use.

2 In the industrial sector I think it is
3 somewhat mixed. The material I have referred to on
4 Friday suggested that our billing analysis for the
5 first year showed that there was less megawatt showing
6 up in the off-peak from what had been shifted out of
7 the peak period. However, I think in general, the
8 discussion we had suggested that there could well be
9 increases in overall energy use in the industrial
10 sector.

11 So, I think on net it's too early to
12 say. We have a potential for increase in the
13 industrial sector. I think we have probably more of a
14 potential for a decrease overall in the commercial
15 sector. And to a large extent I guess if we think of
16 total energy use, the plan itself does not call for a
17 very extensive application for time-of-use rates within
18 the residential sector.

19 Q. Let's look at Ontario Hydro's goal.
20 Ontario Hydro has identified the goal of its strategic
21 conservation demand management program to be a
22 reduction not only in peak demand growth but also a
23 reduction in the growth of energy consumption; isn't
24 that correct, Mr. Harper?

25 A. I think the primary focus is on the

1 reduction in energy demand in the peak period. At the
2 same time you can gain efficiency improvements in the
3 off-peak period, yes, that would be our goal, too.

4 Q. Isn't it Ontario Hydro's position
5 that it has no load building or valley filling
6 programs?

7 A. We have no programs directly aimed at
8 building load, that is correct.

9 Q. Just to make it clear for the record,
10 isn't it true that Ontario Hydro's position is to
11 reduce both peak and energy load?

12 A. That's with the total effect of all
13 its programs, yes, that's our quest.

14 Q. Now, last Thursday, Mr. Harper, you
15 said that the current time-of-use rates would continue
16 to be utilized even if there was a net increase in
17 energy consumption in the winter peak period.

18 A. No, I did not say that.

19 Q. I apologize if I mischaracterized it.
20 Would you please tell me what your position is?

21 A. My understanding of the hypothetical
22 we were going through at that point in time was that if
23 as a result of the implementation of time-of-use rates
24 there was a reduction in peak period use, but there was
25 an increase in off-peak period use, to the extent that

1 there was a net increase in overall energy use, that
2 given the cost-effectiveness of that particular result,
3 we would continue to offer time-of-use rates.

4 Q. But the effect of that would be then
5 to actually increase load during the winter periods.

6 A. Yes, during the winter off-peak
7 period you could see an increase in load.

8 I would suspect over the winter period in
9 total the load would go down, because what you are
10 seeing, and I think even if you look at this, primarily
11 what happens is the load increments, if they take place
12 in the summer off-peak period and there is a less of a
13 price response in the summer peak period. So, I don't
14 think you would see winter load go down -- excuse me, I
15 don't think you would see winter load go up in the
16 total. You might see annual load go up in total.

17 Q. Now, if annual load went up wouldn't
18 that be inconsistent with Ontario Hydro's stated goal
19 of strategic conservation?

20 A. I think we have goals in a number of
21 areas besides strategic conservation. Also in load
22 shifting, peak clipping, and I think you have to take
23 them you will on net and look at what is the overall
24 result of the program in accomplishing all of our
25 objectives.

1 Q. My simple understanding, Mr. Harper,
2 is that your No. 1 objective is strategic conservation
3 which is reducing the entire load of Ontario Hydro, and
4 if time-of-use rates actually increase the net energy
5 consumption, that would be inconsistent with your
6 strategic conservation goal, which is your No. 1
7 management, demand management objective; is it not?
8 [10:14 a.m.]

9 A. I think it was characterized as our
10 No. 1 demand management objective in the sense that it
11 was the one that was going to deliver us the most
12 megawatts. I believe that is the way Mr. Wilson
13 characterized it when you were going down the list
14 through him in terms of what were the various demand
15 management initiatives and objectives that we had.

16 They all contributed, all three of them,
17 be it strategic conservation, load shifting, peak
18 clipping, all contribute to the overall effective
19 operation of the system.

20 Q. Well, aren't you really describing,
21 Mr. Harper, a valley filling program when you use
22 time-of-use rates in the manner that you are describing
23 for the winter peak period?

24 A. No. I don't characterize it as that.

25 Q. If it is not valley filling, what is

1 it? It is not strategic conservation.

2 A. It is primarily load shifting. I
3 think valley filling is when your objective, if we go
4 back to those charts Mr. Wilson was using in Exhibit
5 260, valley filling is when you are specifically
6 targeting on filling up your valleys without any effect
7 at all on the peak period use. And clearly, the effect
8 of time-of-use rates is to reduce peak period use.

9 Q. And just to finish on this point, at
10 the end of the day if your study establishes that
11 time-of-use rates are actually building net energy
12 consumption in winter peak periods, that would be
13 contrary to the strategic conservation goal of reducing
14 overall net energy consumption?

15 THE CHAIRMAN: I think the insertion of
16 the word "in winter peak periods" distorts the
17 questions you have been asking.

18 MR. ROSENBERG: Q. Well, if I can deal
19 just then with the question the overall net energy
20 consumption.

21 MR. HARPER: A. I am sorry, could you
22 repeat the question again with the words that you were
23 using?

24 Q. Yes, Mr. Harper. Let me deal with it
25 this way: On the Chairman's point, your testimony is

1 that time-of-use rates may during winter peak periods
2 increase net energy consumption; is that correct?

3 A. I said they may. I think there is a
4 very small likelihood that they will. As I was trying
5 to explain, the net energy increases if they take place
6 most likely occur primarily in the summer off-peak
7 period. There will be less of a conservation or load
8 reduction effect in the peak period.

9 I think during the wintertime, you will
10 see fairly material decreases in the winter - in the
11 winter peak period because that is where you have the
12 highest prices. The winter off-peak period prices are
13 probably roughly akin to what they are now, so I would
14 not expect much change there.

15 Q. And the overall effect of these
16 time-of-use rates, would that be, in your view,
17 possible that it could increase the net energy
18 consumption?

19 A. Yes, it is possible.

20 Q. Thank you. And dealing with a
21 different point with respect to time-of-use rates, why
22 is it that Ontario Hydro does not require customers to
23 demonstrate that they actually have shifted load in
24 order to qualify for time-of-use rates?

25 A. One thing, I think customers want to

1 plan and respond to the rate as opposed to shifting and
2 then going on the rate.

3 The other thing is, if we go back to the
4 start of our discussion in this whole thing on
5 Thursday, we talked about two objectives associated
6 with time-of-use rates; and the first one was trying to
7 give customers a better signal as to what an actually
8 costs to supply them. And to that extent, time-of-use
9 rates, time differentiated by peak, off-peak and by
10 season gives customers a better indication of what is
11 the actual cost of supplying them regardless of whether
12 they shift or conserve.

13 Q. Well, would you agree that
14 preferential rates are, in fact, a form of incentive?

15 A. You have got a couple of words there.
16 I am sorry, could you explain what you mean by
17 "preferential"?

18 Q. Would you agree that time-of-use
19 rates are a form of incentive?

20 A. Yes, they are a form of incentive.
21 Any rate structure or change in rate structure you make
22 will be giving customers different signals and will be
23 a form of incentive.

24 I think this particular incentive as
25 opposed to looking at standard rates tells customers it

1 is more expensive now to do your business in the peak
2 periods; it is cheaper to do it in the off-peak
3 periods. Shift if you can.

4 Q. Given your answer, Mr. Harper, that
5 it is possible that time-of-use rates may increase net
6 energy consumption or increase energy consumption, it
7 is possible then that Ontario Hydro is effectively
8 providing an incentive to its customers to build their
9 load or their total energy consumption?

10 A. That could be one of the results of
11 the overall program. I think clearly though, one of
12 the results of the program will be load shifting.

13 Q. Now, I would like to turn to a
14 different subject.

15 In order to prepare for today, I have
16 tried to separate all of our rate issues out and I will
17 deal with them starting in a few minutes. These
18 questions relate to market research and how market
19 research is integrated into Ontario Hydro's demand
20 management programs.

21 I will preface my questions by saying
22 that in answer to our interrogatories, and we received
23 a lot of information from Ontario Hydro in our
24 interrogatories, but we didn't receive much information
25 on how all of these market studies were integrated into

1 Ontario Hydro's demand management programs and how they
2 were analyzed by Hydro and used to model new programs
3 and analyze existing programs.

4 MS. FRASER: A. Excuse me, in the
5 program concept reference document in Part 2, each of
6 the substantiation sheets references market research
7 documentation. So, if you want to link up the market
8 research referred to in Part 3 of the PCRD, that each
9 of those substantiation sheets indicates which piece of
10 market research was used. So I think that demonstrates
11 the linkage very clearly.

12 Q. Okay. That helps me. My first
13 question was: How would you describe the role of
14 market research with regard to DSM programs, but maybe
15 we should go right to that linkage.

16 What was the exhibit number?

17 A. It is the program concept reference
18 document. It is the linkage between Part 2 of that
19 document and Part 3. There's a series of numbers in
20 each of the substantiation sheets in Part 2 which
21 points to the market research information or report or
22 other study.

23 Q. Okay. I have made a note of that. I
24 would just like to ask some general questions about
25 that and then we will move on.

1 In terms of market research, how do you
2 determine when it is an appropriate time to undertake
3 market research and when it is not an appropriate time?

4 MR. MacLELLAN: A. I guess we tend to
5 consider whenever we don't know enough about a market
6 we are attempting to reach or influence, that is an
7 appropriate time to gather some market research.

8 Whenever we are starting into a new end
9 use or into a new programming area, we tend to do
10 market research. We will do general market research on
11 lighting. We will do general market research on
12 appliances, on new housing, on renovation activity.

13 And then we will use that market research
14 during our program development and program design.
15 Market research doesn't very often tell you what to do,
16 but it gives you some pretty good indications as to
17 which directions to go and what ways to appeal to the
18 public.

19 We then usually do market research - if
20 it is a short program, we will do it at the end of a
21 program and you have seen in the registry of customer
22 research a lot of post-program research after some of
23 the coupon book programs, after some of the very
24 specific short programs. And we do that in order to
25 take stock of whether or not we feel the program worked

1 in terms of customer acceptance.

2 But we also do it so that we can revise
3 that program if it is one that we will be doing
4 annually or semi-annually, any one that we will be
5 doing again. So, in that way, we try to get an initial
6 read on the market and then try to refine it after the
7 fact.

8 [10:25 a.m.]

9 Q. At the broadest level of analysis,
10 Mr. MacLellan, do you have a particular theoretical
11 framework that you use in conducting market research
12 for residential consumers, and if you do, what is that
13 framework?

14 A. I don't know that we do have a broad
15 theoretical framework. We look at a market, we try to
16 figure out what makes it work, find out as much as we
17 can about it. I guess I don't know what you mean by a
18 broad theoretical framework.

19 Q. One theory that has been shown to the
20 CAC is something called the diffusion of an innovation
21 theory, and that's a theory that is used to analyze
22 markets and the diffusion of information and products
23 through markets. Is that something that Ontario Hydro
24 uses in its market research studies?

25 A. I don't believe our department has

1 used it. Our market research department maybe, when
2 they are designing the specifics of the market
3 research. But I can't answer that specifically.

4 Q. Okay. Thank you. I would like to
5 turn to a new subject and that is flat rate electric
6 water service and bulk metering.

7 Now, it's my understanding from the
8 prefiled material that 10 per cent of residential hot
9 water customers have flat rate hot water service and
10 that 3 per cent of commercial hot water customers have
11 flat rate hot water service. I have taken that from
12 one of the interrogatories.

13 Now, I don't know whether that's Ms.
14 Fraser or Mr. Wilson, if you can help me with these
15 questions.

16 MS. FRASER: A. Could you cite the
17 interrogatory, and then we can...

18 THE CHAIRMAN: What is the question? Are
19 you asking them to agree whether it's 10 per cent and 3
20 per cent; is that the first question?

21 MR. ROSENBERG: That's correct, Mr.
22 Chairman, to confirm these numbers. I have 1.12.39.

23 THE CHAIRMAN: Which will be number?

24 THE REGISTRAR: 261.74.

25 THE CHAIRMAN: Thank you.

1 ---EXHIBIT NO. 261.74: Interrogatory No. 261.74.

2 MR. ROSENBERG: Q. That's at page 3 of
3 Tab 1, of Exhibit 298, bottom of the interrogatory.

4 MR. HARPER: A. I think it is probably
5 fair to say I don't think any of us were directly
6 involved in the preparation of the numbers, but I think
7 we can accept them as being generally correct, yes.

8 Q. Now, under a flat rate hot water
9 service, Mr. Harper, a customer pays "X" dollars per
10 month irrespective of the quantity of hot water that he
11 consumes; correct?

12 A. Yes, that is correct.

13 Q. Would you agree that if hot water
14 customers were changed to paying so many cents per
15 kilowatthour for each kilowatthour of electricity used
16 to produce hot water, that customer would have a
17 greater financial incentive to conserve electricity?

18 A. Yes.

19 Q. Does Hydro have plans to ban flat
20 rate hot water service for all new residential and
21 commercial hot water loads?

22 A. Yes. Effectively flat rate water
23 service has been banned since 1984 for new
24 applications.

25 What you are seeing here is the result of

1 a grandfathering of previous flat rate water heaters.

2 There was another interrogatory, 4.2.9,
3 that gives a more general history of the evolution of
4 flat rate water heaters within the province, and if you
5 look at that, in 1973 there were basically 215
6 utilities offering flat rate water heater service, in
7 1984 there were 103 and now there are roughly 73
8 utilities.

9 Except for a couple of instances where
10 the flat rate water heater is combined with load
11 control, in which cases the utilities are allowed to
12 offer that as a service to new customers, in all other
13 cases flat rate water heaters are limited to existing
14 customers, that is the prior to 1985 customers.

15 Q. What are these control loads?

16 A. This would be a load control where
17 the utility has the ability to shut off the water
18 heater during times of high demand on that particular
19 utility's peak -- excuse me, on that particular
20 utility's system. So effectively, it's a peak clipping
21 or load shifting approach and it was the one I talked
22 about in my direct evidence.

23 Q. So, the sum of all that is, that
24 Hydro is still going to permit flat rate hot water
25 service for interruptible hot water loads?

1 A. Yes. To date we have I think about
2 three utilities in the province that offer that on that
3 basis.

4 Q. And the reason that interruptible
5 rate customers will pay -- let me break it out
6 differently.

7 This interruptible load will pay less
8 than -- or an interruptible load customer will pay less
9 than a permanent load customer?

10 A. Yes, there is a discount offered to
11 the customer for the fact that he is susceptible to
12 these interruptions.

13 I think maybe if I can go on and explain
14 a bit further. Having grandfathered it, one of the
15 reasons why it's not immediately easy to transfer them
16 all over is it does require rewiring of the service for
17 the particular customer in order to that from a flat
18 rate water heater on to a metered water heater. And
19 typically what utilities do is when they are in a
20 particular residence doing work, either upgrading
21 service or something else, if they are in the house
22 already they will rewire the flat rate water heater. I
23 can testify to that have because it happened to me.

24 Q. So, that is happening in the
25 residential load, but what about in the industrial

1 load. Why shouldn't interruptible hot water customers
2 be charged for every kilowatthour of electricity they
3 consume albeit at a lower rate?

4 A. Sorry, in the industrial?

5 Q. Excuse me, the commercial.

6 MS. FRASER: A. Those are
7 multi-residential customers rather than businesses.

8 Q. What I don't understand is, albeit
9 the service for an interruptible customer is less
10 valuable than a firm load, why do you have a different
11 rate application? Why not charge them just a lower
12 rate per kilowatthour of electricity used?

13 A. By and large the bulk of utilities
14 that offer controlled water heater programs do meter
15 the water heater and then offer a fixed discount.

16 A couple of utilities - and this is real
17 a hang-over from the pre-1973 era - had flat rate water
18 heaters, then offered a fixed discount per month. I
19 think they found that it easier to explain to the
20 customer because the discount is a fixed amount per
21 month and the charge for the water heater is a fixed
22 amount per month, so the customer could very easily see
23 the relative benefits of having his water heater
24 controlled, whereas otherwise when it was metered it
25 was much more difficult for the customer to understand

1 how that discount related to his overall cost of
2 electric water heating.

3 But I would agree, it's something that
4 would be preferential to have it all metered.

5 Q. Does Hydro have plans to, in fact,
6 phase out all of the existing firm and interruptible
7 hot water customers given that it is preferential or do
8 you see the status quo remaining?

9 MR. B. CAMPBELL: I am sorry, I am not
10 sure Mr. Harper's answer can be taken as extending - at
11 least I didn't understand it as extending - to
12 interruptible, which is the assumption in your
13 question.

14 MR. ROSENBERG: I thought it did. But I
15 will just let Mr. Harper answer, and if Mr. Campbell is
16 correct, then please correct me.

17 MR. HARPER: I think on the firm side we
18 are phasing out flat rate water heaters. We have been
19 phasing them out since 1984.

20 On the interruptible or load control
21 side, there is a very limited application. I can
22 honestly say at this on point in time we don't have any
23 specific plans in that area, no.

24 MR. ROSENBERG: Q. Although your
25 evidence is that it would be preferable to do that?

1 MR. HARPER: A. Yes, I think it is
2 something we should look at.

3 Q. One more question. Why is it that
4 there are no plans to do that? Is that something you
5 will get to or nobody is pushing that issue?

6 A. I guess it's something, given the
7 limited application we haven't gotten around to looking
8 specifically at it at this particular point in time.

9 Q. Now, some points of clarification. I
10 would like to you turn to page 61 of Tab 1, which is
11 Interrogatory 4.12.49.

12 THE CHAIRMAN: Better give it a number.

13 THE REGISTRAR: 261.75.

14 ---EXHIBIT NO. 261.75: Interrogatory No. 4.12.49.

15 MR. ROSENBERG: Q. Now, 4.12.49, the
16 question at page 59, 4.12.49A, asked for a break out of
17 capital expenditures on DSM by the year for each year
18 from 1991 to 2014. However, the response in 4.12.49
19 only provides a break out to the year 2000.

20 Now, I will address these questions to
21 Mr. Harper. That is the concern we have.

22 Now, the first question I have is: What
23 is the present value of the total capital cost of Plan
24 15 in constant dollars? Is it approximately \$60
25 billion in 1989.

1 MR. HARPER: A. I'm sorry, I don't know.
2 That's not my particular area.

3 Q. Does anybody on the panel have that
4 information?

5 MR. WILSON: A. I think that's about
6 correct, but I will have to check that.

7 Q. Subject to check, let's take that
8 number, about \$60 billion. Now, does the \$60 billion
9 or whatever that number is, include capital
10 expenditures for DSM beyond the year 2000?

11 MR. SHALABY: A. If we are going to use
12 the \$60 billion, maybe I can help a bit.

13 The \$60 billion a figure introduced in
14 Exhibit 6, which is a plan analysis document, and it is
15 not a present value number. It's dollars of 1989 as
16 spent to the end of the planning period.

17 Now, there are present value numbers that
18 are in Chapter 15, costs of the plan expressed in that
19 way. Just to clarify the use of the figures. And the
20 \$60 billion includes demand management expenditures
21 beyond the year 2000, it includes demand management
22 expenditures to the end of the planning period.

23 Q. Our concern with 4.12.49 was that,
24 just looking at page 62 of the CAC exhibit, is that in
25 Part 2 in the response to the interrogatory, it says:

1 Hydro's forecast capital expenditures
2 for the energy management function for
3 the years 1991 to 1996 are as follows...
4 And it lists certain numbers. And then
5 says:

6 Beyond 1996 the forecast costs to the
7 year 2000 are simply mathematical
8 projections.

9 What we would like to be able to do is to
10 understand or compare the demand management expenditure
11 versus the supply expenditures versus the supply
12 expenditures during the life of the planning period,
13 and the best information we have been able to divine
14 from the prefiled material is this interrogatory. Can
15 the panel help us at all with these comparisons? Is
16 there any better analysis out there of demand
17 expenditures versus supply expenditures over the
18 lifetime of the plan?

19 [10:39 a.m.]

20 A. Maybe we will get back to Exhibit 6,
21 page 8-9. It shows the lifetime expenditures in the
22 various areas of the plan. And I remind you again,
23 this is a snapshot as of 1989. Things have changed, I
24 see, for it considerably since then, but that was the
25 snapshot at the time.

1 THE CHAIRMAN: Can you give me the
2 reference in Exhibit 6 again, please?.

3 MR. SHALABY: Exhibit 6, page 8-9.

4 THE CHAIRMAN: Thank you.

5 MR. ROSENBERG: Q. What we are going to
6 do is look at that over the morning break and that
7 might satisfy our questions, so I am going to put that
8 down now.

9 We hadn't looked at Exhibit 6, so if I
10 have any more questions, I will advise you after the
11 morning break.

12 I would like to turn now to the subject
13 of rate structures. Mr. Burke, in Panel 1 you told us
14 that Ontario Hydro would be moving to or implementing a
15 straight line rate for electricity consumption
16 replacing the existing declining block rate structure
17 in the residential sector; do you recall that evidence?

18 MR. BURKE: A. No, that is not exactly
19 the evidence I gave. I think the evidence I gave
20 indicated that there was a proposal to senior
21 management to implement such a rate structure in the
22 rural retail system of Ontario Hydro. That was my
23 understanding.

24 I think when we were talking about it,
25 there was an interrogatory response that had just been

1 submitted. And in fact, that interrogatory response
2 wasn't completely clear on the issue that this was just
3 a proposal at the time.

4 Q. Well, if we can turn to Interrogatory
5 4.12.46, which is at page 55 of Tab 1 of Exhibit 298.

6 That requires an interrogatory number?

7 THE REGISTRAR: 261.76.

8 EXHIBIT NO. 261.76: Interrogatory No. 4.12.46

9 MR. ROSENBERG: Q. The last time we
10 discussed this was in the spring, Mr. Burke, and at
11 page 56, the answer to the interrogatory says in the
12 second paragraph:

13 Hydro is currently reviewing the
14 implementation of a service charge and a
15 flat energy rate to replace the declining
16 block rate structure for residential and
17 general service customers. It is
18 expected in 1992 Hydro's retail system
19 will implement this change for their
20 residential customers.

21 Do you have any further information on
22 this point?

23 MR. HARPER: A. I think it is probably
24 best if I speak to that, Mr. Rosenberg. I think as Mr.
25 Burke indicated at the time that he was testifying and

1 at the time of the preparation of the response to this
2 interrogatory, we were reviewing changing our rate
3 structure and I spoke to that in my direct evidence.

4 Actually, subsequent to the issuing of my
5 direct evidence and in working towards the rate
6 finalization for 1992, Ontario Hydro's senior
7 management decided not to proceed with the
8 implementation of a service charge for Hydro's rural
9 system for 1992.

10 Q. Now, what about the fourth and fifth
11 paragraph? It says -- well, let's look at the fifth
12 paragraph:

13 Hydro's current plans are to have 100
14 per cent of residential customers on the
15 new rate structure by 1994 and '95, but
16 no final decision has been made on a
17 target date.

18 Do you have any further information on
19 that point, Mr. Harper?

20 A. Not really. At the time our plan was
21 to implement it for our rural system and basically for
22 1992 provide it as an option to the municipal
23 utilities.

24 We had indication from a number of
25 municipal utilities we had been talking to that they

1 were interested in picking up the option.

2 This reflected our view at the time that
3 eventually we would like to move all of the utilities
4 over to that particular rate structure.

5 Having decided not to proceed with it for
6 our own rural system for 1992, essentially, it is not
7 being suggested as an offer to the municipal utilities
8 in 1992 either.

9 Q. Now, what is the reason you have
10 decided not to do it for 1992? Is it a timing question
11 or are you fundamentally reassessing the policy of
12 going from declining block rate to flat or to a service
13 charge and a flat energy rate?

14 A. I think one, I think there is still
15 an interest in restructuring the rates, the residential
16 and small general service rate structures in order to
17 eliminate the declining block.

18 The particular decision with respect to
19 '92, I think, really had three reasons underlying it:
20 One was a desire on the part of the municipal utilities
21 to have further study of the proposal before
22 proceeding.

23 The second was a concern about the
24 positioning of the proposal and the potential loss of
25 benefits if it was going to be implemented the same

1 time as what turned out to be a fairly significant
2 wholesale rate increase.

3 And the third was some continuing debate
4 over the relative merits of other alternatives that had
5 been put forward.

6 Q. Could you briefly describe the other
7 alternatives? We are going to be getting into one
8 particular alternative in some detail, but what other
9 alternatives were you looking at?

10 A. I think the other main alternative we
11 had been looking at - and maybe I have to explain a
12 little bit more the specific alternative we were
13 recommending in order to try and clarify the difference
14 between the two, was that the study team put together,
15 had recommended an approach whereby there would be a
16 monthly service charge for customers that you would pay
17 up front, probably something in the order of \$6 per
18 month and that all the energy you use will be billed at
19 the same kilowatthour rate.

20 One of the alternatives that had been
21 suggested was that we don't have a service charge at
22 all, just have a straight single 2 kilowatthour rate
23 for all energy used and addressed the issue of low use
24 customers basically through a minimum bill as opposed
25 to a service charge.

1 THE CHAIRMAN: For what, I am sorry?

2 MR. HARPER: Through a minimum bill.

3 THE CHAIRMAN: A minimum bill.

4 MR. HARPER: Currently we do that on the
5 system right now. We have a declining block rate
6 structure. We also have a minimum bill, and I think it
7 is generally in the order of about \$5 a month. So that
8 even if you use very few kilowatthours, you still have
9 to pay that minimum of \$5 a month. It is designed to
10 cover the meter reading and things like that which we
11 have to do regardless of whether you are using
12 electricity or not.

13 MR. ROSENBERG: Q. And this alternative
14 of no service charge, just a low minimum bill, why
15 would the be preferable to the service charge and flat
16 energy rate?

17 MR. HARPER: A. When you work out the
18 arithmetic of the two, I guess the main thing going for
19 it was the fact that the resulting energy rate turned
20 out to be higher. And there was a view that a higher
21 energy rate would signal to customers a greater need to
22 conserve.

23 Q. Well, why don't we -- just one
24 second, please.

25 I would like to move to a different part

1 of my cross-examination now because that is a point the
2 CAC has been looking at. I would like you to turn to
3 Exhibit 299, which was prefiled at the beginning of the
4 CAC's cross-examination.

5 A. Excuse me, 299, I might have
6 neglected to number it, but that was the one where you
7 have the three figures and it is a reference to
8 Hamilton Hydro's rates.

9 Q. Correct.

10 A. Okay.

11 Q. Now, do you have Exhibit 299 in front
12 of you?

13 A. Yes, I do.

14 Q. A few introductory questions to set
15 the scene for this exhibit: I understand it, Mr.
16 Harper, that Ontario has approximately 315 or 16
17 municipal electric utilities?

18 A. I think Mr. Mark was here last week
19 and 312 was the number he used.

20 Q. Okay. I will take that number. I
21 have seen 315, 316 and others.

22 A. I should probably explain. Part of
23 the problem is it changes. As we go through time, we
24 have utilities merging together. We have new utilities
25 being formed out of our rural area and sometimes we

1 actually have utilities just expanding and going back
2 into our rural systems, so the number does move through
3 time.

4 Q. I will take it as approximately 312.
5 Now, I also understand that a municipal utility's
6 retail rates are regulated by Ontario Hydro?

7 A. That is right. They are approved by
8 Ontario Hydro.

9 Q. And as of this point in time, all of
10 the municipal utilities have declining block rate
11 structures?

12 A. Yes, for the principal rates, that is
13 correct.

14 Q. The residential sector.

15 A. That is right, in the residential
16 sector. There are some utilities that offer
17 time-of-use rates. A couple of utilities have approved
18 time-of-use rates and I believe one of those actually
19 has a service charged as opposed to a declining block
20 rate for their residential time-of-use rates.

21 Q. And these declining block rate
22 structures have a two-step declining block; you have
23 one rate for the first amount consumed and a second
24 lower rate for all other energy consumed?

25 A. Yes. As you have shown on your graph

1 here in Exhibit 299, the break point is at 250
2 kilowatthours per month.

3 Q. And relatively, there is a higher
4 charge for the first 250 kilowatts per month and a
5 relatively lower charge for the remaining kilowatts?

6 A. For the first 250 kilowatthours per
7 month, yes.

8 Q. Do you know what percentage of the
9 municipal utility's residential customers consume in
10 excess of 250 kilowatthours of electricity per month?

11 A. No, not precisely. The municipal
12 utility billing records are something that are the
13 property of the individual municipal utilities.

14 We have an understanding of what is the
15 average use in each municipal utility but not the
16 distribution of that use across the individual
17 customers.

18 Q. Okay. In Interrogatory 4.12.48 which
19 is at page 57 of the CAC's Exhibit 298 --

20 A. Yes, I have got that.

21 Q. And in particular at page 58, where
22 the answer is given, it appears that 95 per cent of
23 residential customers on Ontario Hydro's direct load
24 consumed electricity in excess of 250 kilowatthours of
25 electricity per month on a regular basis?

1 A. Yes, that is correct.

2 Q. So could we assume that directionally
3 the municipal electric utility's residential load would
4 mirror a similar pattern, that about 95 per cent of the
5 residential customers would likely use more than 250
6 kilowatts per month?

7 A. I don't think that is a fair
8 assumption to make. The average use in our rural
9 system is about 14 to 1500 kilowatthours a month
10 whereas the average use in municipal utilities is
11 somewhere around 900 to 1000 kilowatthours a month.
12 So, given there lower average use I would suspect some
13 shift downwards in the overall distribution of the
14 individual customers. And so, if anything,
15 directionally I would suspect that percentage to be
16 lower in the municipal utilities.

17 Q. Do you know how much lower it might
18 be?

19 A. I really don't have a handle on that.
20 I am just trying to remember an example. I think
21 rather than be specific and be wrong I would rather
22 pass.

23 Q. do you know if that information is
24 readily available somewhere?

25 A. It would not be readily available to

1 us, it is something that as I said would be the matter
2 of the individual utility billing records and so it
3 would have to one, be gotten from the 313 utilities and
4 two, it is a matter of whether they have actually done
5 the statistical analysis themselves to sort of look at
6 their billing records to extract that particular piece
7 of information.

8 MR. ROSENBERG: We should give that
9 interrogatory a number.

10 THE REGISTRAR: 261.77.

11 EXHIBIT NO. 261.77: Interrogatory No. 4.12.48.

12 MR. ROSENBERG: Q. Now, I would like you
13 to turn to Tab 13 of the CAC's prefiled material
14 Exhibit 298.

15 MR. HARPER: A. Yes, I have got that.

16 Q. Now, in order to make the discussion
17 regarding Exhibit 299 more concrete, I would like to
18 examine Hamilton Hydro's residential rates for 1989.
19 Now, in 1989 Hamilton Hydro's rate per kilowatthour for
20 the first 250 kilowatts of residential electricity
21 consumption was 8.92 cents; is that correct, Mr.
22 Harper?

23 A. Yes, it is.

24 [10:55 a.m.]

25 Q. To follow this chart, on page 4 of

1 Tab 13, Hamilton is listed in municipal utility; is
2 that correct?

3 A. Yes.

4 Q. Then it has kilowatthours, 250, and
5 cents per kilowatthours 8.92?

6 A. Yes.

7 Q. The 1989 residential rate for all
8 electricity consumption in excess of 250 was 5.3 cents
9 and that's at the right-hand column?

10 A. Yes.

11 Q. Where it says "balance block cents
12 per kilowatthour"; is that correct?

13 A. Yes.

14 Q. Tab 14.

15 A. I have got that.

16 Q. Tab 14, the second utility listed, it
17 says, municipal utility electricity, 40 major municipal
18 for the year ended December 31, '89, sales revenue and
19 customers, electric utilities. Hamilton is the second
20 one listed. And from my reading of that, it appears
21 the total residential sales were approximately 953
22 million -- or excuse me, yes, 953 million kilowatthours
23 and total residential revenues were \$62 million?

24 A. Yes, that's approximately correct.

25 Q. Thus, its average revenue per

1 kilowatthour of residential sales could be determined
2 by dividing certain numbers, could it not?

3 - A. Yes. If you took the revenue number
4 of roughly \$62 million and divided by the sales number
5 of roughly 953 million kilowatthours, you get the
6 result on the far right-hand side which is revenue per
7 kilowatthour of 6.48 cents.

8 Q. Now, everything else being equal, if
9 Hamilton Hydro's declining block rate structure had
10 been replaced by a straight line rate structure, then
11 Hydro's flat energy rate would be approximately equal
12 to its average revenue cost of 6.48 cents; is that
13 correct?

14 A. Yes, approximately. There may be a
15 bit of revenue allowance for collection of additional
16 revenue on minimum bills, but I think for illustrative
17 purposes the 6.4 is acceptable.

18 Q. I would like to turn now to Exhibit
19 299 where we have attempted to plot out some of these
20 numbers on three figures. The first is Figure 1 on
21 Exhibit 299, it says, Hamilton Hydro's 1989 residential
22 rate.

23 Have you had an opportunity to review
24 this, Mr. Harper?

25 A. Yes, I have.

1 Q. Do you feel that Figure 1 accurately
2 represents the rate structure for Hamilton Hydro for
3 1989?

4 A. It accurately reflects the monthly
5 rate structure, yes.

6 Q. Just to understand this, the first
7 250 kilowatthours used, the residential customer in
8 Hamilton would pay 8.92 cents?

9 A. Yes, that's correct.

10 Q. And then for every kilowatt
11 thereafter they would pay 5.3 cents?

12 A. For every kilowatthour thereafter
13 they would pay 5.3 cents.

14 Q. Why is it that in the first 250
15 kilowatthours used they would pay 8.92 cents?

16 A. The attempt in that first 250
17 kilowatthours is to capture some of the fixed, what we
18 called fixed or semi-fixed, or another way of
19 expressing is customer-related costs associated with
20 serving residential customers. That would include
21 things like the cost of the meter, meter reading,
22 issuing the bill, say, the basic service drop to the
23 customer, those sorts of things that are, to a large
24 extent, independent of how much power the customer
25 actually uses.

1 Q. Now, turning to Figure No. 3.

2 A. Yes?

3 Q. Would you agree that Figure No. 3
4 outlines the application of a straight line energy rate
5 plus a monthly service charge using the Hamilton Hydro
6 rate numbers for 1989?

7 A. No.

8 Q. Could you explain why?

9 A. Trying to design rates on the stand
10 here, but if we go back to Figure 1, I think maybe
11 that's the easiest place to start.

12 This reflects Hamilton Hydro's rate
13 structure. I think if further down on the graph below
14 the 5.3 cents you were to envision a straight line
15 running all the way across at roughly 4.76 cents, that
16 would reflect, basically, the cost of power to Hamilton
17 Hydro in terms of what they have to pay Ontario Hydro
18 in order to supply those particular residential
19 customers. It is the area above that 4.76 line that
20 basically represents the amount of revenue that
21 Hamilton Hydro is collecting through its rates in order
22 to recover its own local costs.

23 If we move to your Figure No. 3 and we
24 think of that same 4.76 cents line running along the
25 bottom, basically what our proposal was, was that if

1 you looked at all of the area above the 4.76 line, 60
2 per cent, roughly 60 per cent of that we would collect
3 through the energy rate and 40 per cent we would
4 collect through a service charge.

5 Now, for Hamilton Hydro that ends up
6 giving you an energy rate of 5.79 cents which is
7 approximately a 9 per cent increase in the end rate,
8 and a service charge of \$4.85 a month.

9 Q. All right. So the straight line
10 energy rate on Figure 3 would be 5.79 cents?

11 A. Yes.

12 Q. I made a note of that.

13 Now, I would like to turn to Figure No.
14 2.

15 A. Yes.

16 Q. And Figure No. 2 is a hypothetical
17 straight line energy rate with no service charge, and
18 it takes the 6.48 cents and plots it.

19 Would that be an accurate straight line
20 energy rate using the average rate per kilowatthour of
21 Hamilton Hydro?

22 A. That's a fair representation, yes.

23 Q. Now, directionally, Mr. Harper, if a
24 6.48 cent per kilowatthour figure was used as a
25 straight line energy rate, would you expect

1 directionally that it would promote more conservation
2 of electricity than a 5.79 cent straight line energy
3 rate plus a service charge?

4 A. I think it would provide a greater
5 inducement to customers to use less, yes.

6 Q. Now, in your opening comments about
7 rate structures you said that some of the utilities
8 were discussing alternatives to the one put forward in
9 the interrogatory last spring, and you described the
10 straight line energy rate as one such example.

11 Does Figure 2 accurately reflect or
12 represent one of the options currently being considered
13 by Hydro?

14 A. Well, I guess we are - to be honest -
15 we are in a bit of hiatus here. As I said, we made
16 some recommendations to senior management. There was a
17 decision not to proceed and to look at it further.

18 Since then my staff has been rather
19 directly involved in the actual finalization of what
20 the 1992 rates are actually going to be, and I think
21 it's something we are going to have to get back to
22 after the rates are approved in October, but definitely
23 this is still on the plate as one of the alternatives.

24 Q. And what is your target date to make
25 a decision on which rate structure to choose? Is

1 it the next filing at the Ontario Energy Board next
2 spring?

3 A. Indirectly, yes. Residential rates
4 are not something that the Ontario Energy Board is
5 directly involved in reviewing. The Board is
6 responsible for reviewing the rates Ontario Hydro
7 charges its direct industrial customers and rates it
8 charges it municipal utilities.

9 However, the residential rate structure
10 does have a bearing on the level of rural rate
11 assistance that is paid out, which in turn has a
12 bearing on municipal utility and direct rates, and as a
13 result it's something that we would hope to, in part,
14 finalize at least directionally where we are going
15 prior to our filing with the OEB, yes.

16 Q. I would like to turn now to Tab 15.
17 Tab 15 in Exhibit 298 is use of a service charge as an
18 alternative to declining block rate structure.

19 A. Yes, I have got that.

20 Q. And the document is dated July 8,
21 1991.

22 Can you please describe what this
23 document is, Mr. Harper?

24 A. This document is a draft report that
25 was prepared by an Ontario Hydro study team. Basically

1 what it does is it presents their recommendations and
2 supporting rationale for restructuring the rates used
3 -- for residential and small general service customers.

4 Q. Why was this document prepared and to
5 what use has it been put?

6 A. At the point that this document was
7 prepared - and actually there was one very similar to
8 it that had been prepared a little bit earlier - the
9 recommendations had been accepted in principle by the
10 senior management of the two branches involved in doing
11 the study. We had had some preliminary discussions
12 with both the MEA and the Ministry of Energy staff on
13 what the direction of those recommendations were going,
14 and the purpose of the draft was to provide more
15 explanation to them in terms of so they could better
16 understand the rationale for the particular
17 recommendations we were making.

18 It was also similarly to be used
19 internally as a document to explain to other people
20 within Ontario Hydro as to the rationale for the
21 particular recommendations we were making.

22 Q. Now, turning to page 21 of the
23 report.

24 A. Okay.

25 Q. And paragraph 9.3, second paragraph,

1 the last sentence of that second paragraph, it says:

2 A subsequent meeting was held in June
3 at which time the Ministry staff
4 expressed preference for the zero service
5 charge approach.

6 Do you have that sentence?

7 A. Yes, I do.

8 Q. Now, using Exhibit 299, is not Figure
9 2 of Exhibit 299 in fact equivalent to the zero service
10 charge approach?

11 A. Yes, that's a way of representing
12 that particular approach.

13 Q. So, when they talk about the Ministry
14 here, it's the Ministry of Energy favours the Figure 2
15 approach; is that correct?

16 A. That was at that particular time.

17 I think it is fair to say we forwarded
18 the draft to them, had some subsequent discussions with
19 them through July and the early part of August, and
20 while -- unfortunately I was on vacation at that point
21 in time, but having talked to them afterwards, my
22 understanding of the upshot of the discussions were,
23 while they still favoured that, the staff members we
24 were talking to felt they could accept the approach we
25 were talking to. One of the reasons for that was the

1 fact that we were looking at pretty substantial
2 increases to our wholesale rates which themselves
3 passed directly through to the end rate that the
4 utility is going to be charging its customers.

5 Q. Now, with respect to the rest of the
6 major focus of this document, I would like to turn your
7 attention to page 20 of Tab 15.

8 A. I have got that.

9 Q. This is a table which evaluates the
10 three different proposals put before it, correct? And
11 the three proposals are set out at the top of Table C,
12 and the first one is, declining block energy rate
13 structure; is that correct?

14 A. Right.

15 Q. And that's the existing Ontario Hydro
16 rate structure?

17 A. Yes.

18 Q. Then the straight line energy rate
19 structure with the service charge, that is the Hydro
20 proposal which more or less is Figure 3 as amended by
21 your No. 5.7?

22 A. Yes.

23 Q. 79, actually.

24 And the third alternative reviewed is the
25 straight line energy rate structure only which is

1 effectively Figure 2 on Exhibit 299?

2 A. Yes.

3 Q. Now, I have looked through this
4 study, Mr. Harper, and I have tried to determine what
5 the methodology was for the preparation of this table
6 in the evaluation of the various criteria and I am not
7 sure I found any definitive answer.

8 Could you explain to the Panel what the
9 methodology was that was used in preparing this study
10 and how the criteria were, for example, identified and
11 weighted?

12 A. I think the idea was we had a number
13 of options and to assess those options we identified
14 various criteria that we thought should be tested
15 against.

16 The criteria to a large extent fall out
17 of the corporate objectives we have for rate-making and
18 policies that we used in rate-making, and then trying
19 to decide if you have a whole list of criteria which
20 ones you do believe you should put more emphasis on or
21 less emphasis on. So to some extent the weighting
22 factor was trying to do that.

23 I think perhaps before we go any further
24 any, I should add that I think putting a table together
25 like this is a useful exercise in terms of trying to

1 clarifying one's thinking. It helps one put down on
2 paper what one thinks are the important objectives, the
3 lesser important objectives. It helps one see where
4 the differences are.

5 I don't think making decisions and making
6 policy is simply a matter of adding up numbers at the
7 bottom of the Table and picking the one that's the
8 highest. But I think it does help isolate where the
9 differences are and one could focus on those and see
10 what are the material pros and cons of any particular
11 option.

12 Q. Fair enough.

13 I would like to look then, I am going to
14 go into the chart because we have some concerns with
15 the criteria, but I see the context that you have put
16 it in now.

17 But dealing with the first paragraph
18 under Table C, it says:

19 The straight line energy rate without
20 a service charge...
21 That's the third column, the one at the most extreme
22 right; correct?

23 A. Right.

24 Q. Rank highest in the category of
25 encouraging wise and efficient use of

1 resources. Since this structure results
2 in the highest energy rate, the team
3 believed that it would be the most likely
4 to deter inefficient or wasteful use of
5 electricity.

6 Would you agree with that Mr. Harper?

7 A. Generally, yes, with one
8 qualification. And that is, I think when we were
9 talking earlier about this, we talked about the fact
10 that the higher the end rate was, the more inducement
11 you have for people to use less, so to that extent I
12 think it further encourages conservation.

13 To the extent that our rates right now
14 exceed our avoided costs, I wouldn't want to try to
15 read in any sort of economic or technical definition of
16 the word "efficient" when we are talking about it in
17 that context, because if you were to do that you might
18 suggest even our current end rate is too high.

19 So, I think it is just more generally it
20 would encourage people to conserve the most in the
21 sense that they would be facing the highest rate for
22 their incremental use.

23 MR. ROSENBERG: Mr. Chairman, I see it's
24 13 minutes after the hour, if you would like to take
25 the break at 11:15 it might be an appropriate time to

1 stop. If not, I will continue.

2 THE CHAIRMAN: We usually take it at
3 11:30 but if you think it's appropriate to stop at
4 11:15 and that will encourage you to organize your next
5 set of questions, we will.

6 MR. ROSENBERG: It would, Mr. Chairman.
7 I can say this: We are moving faster through my
8 cross-examination than I thought, and if take a break
9 now it may even go quicker.

10 THE CHAIRMAN: Okay. Thank you.

11 THE REGISTRAR: The hearing will take a
12 fifteen minute recess.

13 ---Recess at 11:14 a.m.

14 ---On resuming at 11:36 a.m.

15 THE REGISTRAR: Please come to order.
16 The hearing is again in session. Be seated, please.

17 THE CHAIRMAN: Mr. Rosenberg?

18 MR. ROSENBERG: Thank you, Mr. Chairman.

19 Q. Mr. Harper, as I understand the
20 evidence this morning, there are now two rate structure
21 proposals that Hydro is actively reviewing. One is
22 demonstrated in Figure 3 and the other is demonstrated
23 in Figure 2 of Exhibit 299; is that accurate?

24 MR. HARPER: A. I think they are
25 primary contenders at this point in time, I think the

1 Figure 3 would be as amended during our discussion.

2 I think clearly one of the things we want
3 to do is go back and reconsider our criteria to see if
4 there is anything else we want to add and have another
5 look at the whole issue, but I think those two are
6 definitely on the table, yes.

7 THE CHAIRMAN: I am sorry to do this, but
8 I wasn't quite sure I followed why it was necessary in
9 Figure 3 to raise the \$5.30 to \$5.79.

10 MR. ROSENBERG: As I recall --

11 THE CHAIRMAN: Because the revenue would
12 seem to be that would increase; that the flat rate
13 charge will mean that whether you use 250 or not, you
14 will still pay the flat rate or the service charge or
15 whatever it is called.

16 MR. HARPER: Yes. Under the third
17 alternative, which was Figure 3, for Hamilton Hydro,
18 you would be paying the \$4.85 service charge every
19 month and then you would be paying the 5.79 cents for
20 each kilowatthour consumed. It is really -- and we may
21 or may not get into this, we will see where the cross
22 is.

23 THE CHAIRMAN: I am sorry, I didn't
24 follow you. It is an adjustment then of the \$9.05
25 downward; is that correct?

1 MR. HARPER: I think what was there in
2 the original table to be fair was probably a
3 mischaracterization of our proposal and I would suggest
4 it is probably best ignored. That would be my
5 suggestion.

6 MS. PATTERSON: The whole figure?

7 THE CHAIRMAN: It is just that I didn't
8 understand the thinking behind it. That was what I was
9 having some trouble with.

10 MR. HARPER: The issue in terms of trying
11 to come up with a service charge level - as I talked
12 about, a service charge is typically thought of as
13 being the customer related cost - there is a range of
14 ways you can define customer-related costs, all the way
15 from just the cost of issuing the bill up to including
16 the meter, up to also including the service drop. That
17 gives you a wide range of potential for the service
18 charge.

19 In a lot of utilities, their selection of
20 where they drop in that particular range is based on a
21 judgment and weighing that off against other objectives
22 they have; like, what is that going to do to the end
23 rate in terms of perhaps encouraging conservation?

24 Any particular rate design is going to
25 have impacts on certain customers and so you may make

1 some judgment in terms of where you want to place that
2 service charge within an acceptable cost range based on
3 what the resulting impacts are going to be on
4 customers.

5 In our mind, the way we have done it,
6 which is basically trying to position about 40 per cent
7 of the local costs as being customer related, gives a
8 reasonable balance between those various objectives.

9 So, you know, we view our proposal as
10 being more reasonable and setting a customer charge at
11 \$9.05.

12 THE CHAIRMAN: Mr. Rosenberg?

13 MR. ROSENBERG: Thank you, Mr. Chairman.

14 Q. Looking at the two alternatives then,
15 the one shown on Figure 3 and the other model in Figure
16 2, Mr. Harper, I would like to get at what the
17 underlying rationale for first the Figure 3 model,
18 which was Hydro's proposal last spring.

19 From the prefiled material and the
20 transcript references that I have reviewed over the
21 break, it appears to me that the rationale for the
22 Figure 3 proposal was that this rate structure was not
23 designed to have an impact on consumption by increasing
24 the marginal price of electricity but rather, has been
25 designed such that a conservation effect would be

1 avoided, was targeted more a perception than
2 conservation; would you agree with that?

3 MR. HARPER: A. No, I wouldn't.

4 Q. How would you characterize the
5 underlying methodology or theory behind the Figure 3
6 example?

7 A. I think in coming at the proposal, we
8 were trying to ensure that at a minimum, that end rate
9 did not go down, so that at minimum, we did not lose
10 any potential for encouraging conservation.

11 As I was saying in my discussions with
12 the Chairman, the idea was to try and look at what was
13 the range of costs that one could reasonably attribute
14 to a service charge; and then within that range, based
15 on considerations of what would be the impact of having
16 a very high service charge or a very low service charge
17 or somewhere in between on individual customers and
18 also, looking at the impact that would have on the
19 resulting end rate, try and pick a proposal that both
20 resulted in fairly reasonable impacts to customers but
21 at the same time gave a conservation message.

22 Q. I would like to find out what that
23 conservation message is because I have looked at Volume
24 10, transcript page 1768, and as well, if you can get
25 that transcript reference out, Volume 48, page 8601 and

1 8602.

2 Now, at transcript page 1768 in Volume
3 10, lines 16 to 23 are Mr. Burke's testimony in Panel 1
4 and I will just read that paragraph:

5 "And, in fact, the sort of rate we are
6 talking about here is very much the one I
7 described to you. That is a rate in
8 which the service charge really
9 corresponds very closely to the
10 differences in the first 250
11 kilowatthours, and does not influence,
12 I'm told by the people in the rate
13 structure unit, does not influence the
14 end rate by more than 2 per cent, which
15 would have truly a marginal affect on our
16 load forecast."

17 Now, Mr. Burke, you gave some testimony
18 as well in direct -- excuse me, Mr. Harper, at page
19 8601 and 8602, Volume 48, with respect to this panel.
20 And in particular, at the bottom of page 8601 and 8602,
21 you describe the theory behind the model proposed in
22 Figure 3 and nowhere does it talk about the
23 conservation affect as being of primary importance.

24 So having had a chance to review those
25 two transcripts, I go back to the question, Mr. Harper,

1 that, in fact, this rate structure proposed in Figure 3
2 or that model was not designed to have an impact on
3 consumption, or, at least, up until today it appears
4 that the evidence of Ontario Hydro is that it was not
5 intended to have an impact on conservation.

6 A. What I was trying to explain when we
7 went into the bottom of page 8601 here was we got into
8 look at this particular rate structure and looking at
9 the restructuring of it primarily because of the
10 comments we were getting from our customers, that they
11 perceived this rate structure as being a message from
12 Ontario Hydro that consuming more was good. And that
13 was not the message we intended in the rate structure.
14 We believe that it accurately reflected our costs, but
15 if it was giving that message as well, that was
16 something that we wanted to change.

17 I think if you look at the July 8th
18 report and also the responses we gave to some of your
19 interrogatories, I think you will see that one of the
20 objectives there was being very cognizant of what any
21 change in that end rate could do in terms of the signal
22 it would send to customers, and one of the specific
23 criteria being that when we were finished this, the end
24 rate was not to be less than what we had started out
25 with. So that was really a floor that you start off

1 and it could be higher.

2 I think Mr. Burke's comments about the 2
3 per cent are probably reasonable on average for
4 utilities, but I think, as we have noted, there is
5 about 312 of them in the province. And the problem
6 with setting averages is you end up getting utilities
7 that can be fairly much off the average and I think the
8 example we worked through with Hamilton Hydro was a
9 case in point where the end rate increases by something
10 in excess of 9 per cent.

11 Q. So, I take it that on average then,
12 you expect that Mr. Burke is correct when he says at
13 page 1768 in Volume 10 that all the implementation of a
14 Figure 3 type rate structure would have a truly
15 marginal effect on our load forecast?

16 A. Well, I think Mr. Burke can speak to
17 what the impact would be on the load forecast. I can
18 speak to what the change in the end rate would be.

19 If we look at the proposal in terms of
20 how it would apply to our rural system, it would
21 probably result in about a 2 per cent increase in the
22 end rate. And on average for all the utilities, it was
23 probably something in the order of 3 per cent, but like
24 I said, around that 3 per cent you are going to have
25 individual utilities that are quite a bit higher.

1 That's one of the problems with trying to
2 work on a proposal like this that will apply to a large
3 number of very different entities, is that you have to
4 be cognizant of what is the potential range of impacts
5 on those utilities.

6 Q. So, the primary focus or the original
7 focus of the rate structure change modelled on Figure 3
8 was to address the perceptions of declining block rates
9 and not to deal with the strategic conservation issue?

10 A. That was the primary thrust going in.
11 As I said, recognizing that if we were changing it,
12 there were a number of things that we wanted to ensure
13 did happen or did not happen, and one of those was
14 where the final rate would end up.

15 Q. I take it that if you use a model
16 rate structure based on Figure 2, that you would expect
17 that the effect on load forecasts would be higher than
18 that of a Figure 3 rate structure model?

19 MR. BURKE: A. I think the effect on the
20 load forecast is the jury is still out as to what the
21 trade-off is between the energy rate and the reduction
22 in the fixed charge.

23 Q. Why is that, Mr. Burke?

24 A. Because I think as we discussed in
25 Panel 1, we don't have any empirical experience with

1 changing the block structure particularly in Ontario
2 and the effect that that actually does have on load.

3 Q. You would agree with me that the
4 primary thrust of the Figure 2 model - that is a
5 straight line energy rate without a service charge -
6 would be to effect conservation or strategic
7 conservation in the residential customer class?

8 A. I think that what you were implying
9 was that the more you do this, that you would obviously
10 get an incremental effect on conservation. As I say,
11 it is not clear at this point to what extent it would
12 make a difference.

13 Q. Well, directionally, Mr. Burke, would
14 you expect that a straight line energy rate would
15 directionally promote more conservation than a straight
16 line energy rate plus a monthly service charge?

17 A. Well, the point is that if the same
18 revenues are being collected from the customer in
19 total, it really comes down to what proves to be the
20 correct model, you might say, for how customers make
21 their energy choices.

22 I would think at the margin,
23 directionally there would be a small effect, but it is
24 certainly not the full price effect because there is
25 the offset from the reduced fixed charge.

1 Q. Well, I would like to take you back
2 then to Tab 15, page 20, the chart with Table C on it,
3 and in particular, the paragraph directly under the
4 chart, Mr. Burke, is the people who prepared this
5 report I don't think had the same difficulty you do.

6 It says:

7 The straight line energy rate without
8 a service charge rank highest in the
9 category of encouraging wise and
10 efficient use of resources. Since this
11 structure results in the highest energy
12 rate, the team believed it would be the
13 most likely to deter inefficient or
14 wasteful use of electricity.

15 Now, do you agree or disagree with that
16 comment?

17 A. In principle, that is correct. I
18 think you were suggesting that one could quantify these
19 differences and that we had a good sense of how much
20 effect reducing the first block or the fixed charge
21 some more would make and I don't have a good sense of
22 that. That is what I said.

23 Q. And the reason you don't have a good
24 sense is because you haven't done an analysis of that?

25 A. That is correct. I don't have any

1 data to work with yet. We haven't done the change.

2 Q. Now, I take it, Mr. Harper, that
3 these are the two rate structures which Hydro is
4 actively considering.

5 Could you tell me which one you prefer
6 and why you prefer it?

7 MR. HARPER: A. I think it is clear at
8 this point in time, I was involved in the review of the
9 report and I was in support of the particular
10 recommendation that the study team made. So, out of
11 the two and based on the criteria that were used, I
12 preferred the straight line energy rate plus the
13 service charge.

14 Q. And why do you prefer that?

15 A. I think in essence, it boils down to
16 a tradeoff between the various objectives that you are
17 looking at. And like I said, you can look at the chart
18 and try and pick out the major differences, but I think
19 the main point in favour of the straight line energy
20 rate structure only is the higher end rate the
21 customers see and the extent to which that would
22 encourage more conservation.

23 On the other side, the straight line
24 energy rate with the service charge, addresses
25 potential customer impacts much better. There is an

1 ability to ameliorate any impacts that arise on
2 customers and the impacts on customers are less.

3 Also, it somewhat better tracks the
4 actual costs of service associated with serving these
5 residential customers; and to that extent, provides
6 somewhat more stable revenue to the utilities who
7 participate in this.

8 So, I think it is weighing off basically
9 the additional conservation message against the
10 stability, the impacts and the cost of service issues.
11 And in weighing off those, the types of things that I
12 thought about myself was the fact, as I mentioned
13 earlier, we are going to be having fairly significant
14 wholesale rate increases both this year and, as the
15 Chairman has suggested, in the press in subsequent
16 years, which in themselves will be passed through to
17 the end rate.

18 The higher the end rate, the more at risk
19 are the municipal utilities who participate in the
20 sense of their net revenue if load changes as a result
21 of either weather or perhaps even as a result of
22 participation in energy management programs. And I
23 think we have seen some discussion earlier here about
24 municipal utility concerns about net revenue
25 implications for participating in energy management

1 programs.

2 As a result, I feel that there is
3 probably more likelihood that utilities will actively
4 adopt the option that has the service charge and will
5 be less concerned about continuing to participate in
6 energy management programs for the residential sector
7 under that particular option.

8 The final point is the comment I made
9 earlier, and that that is currently, our end rates are
10 above our marginal costs for supply to residential
11 customers as they are.

12 So, that if you want to use that as a
13 benchmark in terms of where you think you should be,
14 that sort of would suggest the 5.79 cents we saw out of
15 Hamilton as more acceptable.

16 Q. I would to look at Table C on page 20
17 again. Now, is your conclusion that Figure 3 model -
18 that is the service charge and straight line energy
19 rate - is preferable to simply a straight line energy
20 rate based on the analysis undertaken into Table C?

21 A. As I said, I think the analysis in
22 Table C outlined where the major differences were
23 between the two. I think in the discussion I have just
24 gone through with you, I tried to highlight what were
25 some of, in my mind, the major differences.

1 I think the differences in terms of the
2 criteria outlined here are the same as what I have
3 highlighted with you and also provide to you some of
4 the additional thinking that went through in my mind
5 when I was thinking about this.

6 Q. Well, I would like to look at Table C
7 then. First, there is an overall score at the bottom
8 of the page and the overall score for the existing
9 Hydro rate structure is 26, correct?

10 A. Yes.

11 Q. And the straight line energy rate
12 structure with a service charge is 33 and a straight
13 line energy rate structure only is 31, correct?

14 A. Yes.

15 Q. Now, let's look at some of these
16 criteria so that I understand how this weighting was
17 done.

18 It says in row No. 1:

19 "Encourage wise and efficient use of
20 resources," and there is a weighting
21 factor of 4 and then there is a number 4 and 8 and then
22 12.

23 Could you please explain how these
24 ratings were achieved for the entire box so that I can
25 then ask questions about each of the different

1 criteria?

2 A. I think it was as simple as trying to
3 take the three alternatives and rank them one, two,
4 three; and then to some extent, apply the weighting
5 factor to that in multiplication in order to increase
6 the emphasis that you would make.

7 So, if you go down and if you look at any
8 of the criteria that had a weighting factor of one, the
9 resulting numbers are some -- the positioning of those
10 three alternatives is one, two or three. And then it
11 progressively goes up. With a weighting factor of two,
12 it is 2, 4, 6. With a weighting factor of four, it is
13 4, 8, 12.

14 So, I think it is simply a matter of one,
15 two, three and then multiplying by the weighting factor
16 to try and give some additional emphasis to those
17 criteria that were felt to be more important.

18 Q. And the highest weighting then is to
19 encourage wise and efficient use of resources?

20 A. Yes, in this particular table, that
21 was what was done.

22 Q. Now, you have given the straight line
23 energy rate a 12 there and the declining block rate
24 structure a 4 and the straight line energy rate with a
25 service charge, 8.

1 [12:00 p.m.]

2 I take it then that it is felt the
3 straight line energy rate is three times better than
4 the declining block rate structure?

5 A. Well, I think this is where we get
6 into referring back to the comments I was making
7 earlier about the arithmetic in the table. I think it
8 is useful to try and position things.

9 I don't think saying two-and-a-half times
10 or three times, or three-and-a-half times, I think that
11 is probably trying to give a level of precision to this
12 that is more than what is intended. I think it's the
13 relativities that we are looking at here.

14 Q. Well, would you expect from your own
15 experience that the straight line energy rate structure
16 would be more than three times to promote conservation,
17 more than three times that of a declining block rate
18 structure, or is that just a relative measure, a rule
19 of thumb measure that has no quantifiable --

20 A. I don't think that was the intent in
21 putting the weighting on there at all.

22 I think the intent, as I said, was to have
23 an initial ranking of one, two or three and then trying
24 to somehow suggest if in the end you were going to add
25 these things up, if you gave everything 1, 2 or 3 then

1 everything gets equal weighting in the addition. If
2 you decide there were certain criteria that want
3 applied, have additional weight in the overall sum, the
4 way to do that is multiply the initial scoring by some
5 factor. That factor is shown on the far left-hand
6 side.

7 THE CHAIRMAN: Is this 1, 2, 3 analysis,
8 everyone that comes first will be three times more the
9 one who comes third, right the way through the piece.

10 MR. ROSENBERG: Q. Picking up on the
11 Chairman's point, if you have 1, 2 or 3 for every
12 category, it's not necessarily so, is it, Mr. Harper,
13 that by just attaching a number 1, 2 or 3, that you
14 were actually measuring the real ratio or benefit of
15 each of the alternatives?

16 MR. HARPER: A. You are correct, and
17 that's exactly why I said at the beginning, I think
18 this particular exercise is useful in terms of
19 identifying differences and identifying where certain
20 things favour others, but I think actual
21 decision-making is a lot more than just picking the one
22 at the bottom that's got the highest score.

23 Q. Dealing with another criteria, isn't
24 Ontario Hydro's goal to be the leading jurisdiction in
25 North America in demand management and energy

1 efficiency by the year 2000?

2 A. Yes. I think that's generally a good
3 reasonable characterization.

4 Q. Looking at criteria No. 6,
5 consistency with other utilities. I take it that the
6 straight line energy rate structure which would promote
7 conservation is given the lowest weighting of 1, your
8 existing structure is given a 2 and your straight line
9 energy rate structure with a service charge is given
10 the highest rating of 3.

11 Could you explain to me the rationale for
12 that one, two and three rating in that particular
13 analysis?

14 A. The intent here in talking about
15 consistency with other utilities was to suggest how
16 does our actual rate structure, the type of rate
17 structure we are using, line up against the type of
18 rate structures that are applied by other utilities for
19 residential customers.

20 Q. Well, your penalizing yourself for
21 being an innovator in that scoring system; are you not?

22 A. I think part of the issue of this
23 whole thing is the fact that when you have a number of
24 objectives, clearly they don't all come out on the same
25 side; if they did, decision-making would be easy.

1 What you have is a number of objectives,
2 some of which complementary, others of which are
3 conflicting. And in the end it's a matter of trying
4 to - as I was trying to explain in terms of picking
5 between those two alternatives - look at what are the
6 factors or criteria that line up on each side and try
7 and make some choice between those two.

8 Q. Just to understand my point, if your
9 No. 1 goal is strategic conservation and your objective
10 is to be a market leader in the year 2000, that
11 requires some change compared to the current activities
12 of Ontario Hydro and other utilities; correct?

13 A. Yes, it does. And to an extent the
14 issue of trying to be a leader on strategic
15 conservation I think is reflected on the high weighting
16 factor that was given to the very first criteria that
17 we see on the list there.

18 Q. But what use is it in an analysis,
19 because you have adopted these criteria, what use is it
20 to look at consistency with other utilities and then
21 penalize yourself for bringing in strategic
22 conservation as a major goal, which you have done in
23 row No. 6?

24 I am just trying to understand the
25 methodology because you have told me I can't look at

1 the numbers specifically. So I am now trying to
2 understand what the underlying theory is.

3 A. I think what we are trying to get at
4 in this particular point was the fact that customers
5 look at the rate structure they have here. There is an
6 issue in terms of what types of rate structures that
7 may have been applied if they were in other
8 jurisdictions, what type of rate structures are fairly
9 common in use for residential customers, and there
10 seems to be some view of measuring acceptance to some
11 extent in terms of how do your rate structures line up
12 or are they comparable with what is being done in other
13 jurisdictions as being a measure to one extent in terms
14 of will customers understand it, will they accept it,
15 is it something that they are used to.

16 Q. Well, I see there is another box with
17 respect to customer acceptance, and I take it that's a
18 separate factor, customer acceptance, and that's given
19 a weight of four in row No. 2; correct?

20 A. Correct.

21 Q. So, we can't be dealing with customer
22 acceptance because that's already weighted.

23 A. In that aspect of customer acceptance
24 we were looking at the particular aspects of the rate
25 structure in terms of impacts and perception.

1 Q. Let me ask you a different question.

2 If you were to change row 6 and put in consistency with
3 Ontario Hydro objective to be a demand management
4 leader in North America by the year 2000, would you
5 change the scoring in row No. 6? Would you, in fact,
6 give the straight line energy structure a 3?

7 A. Probably, yes. Like I said, I think
8 that's reflected in the first line.

9 I think the other point, while we're
10 talking about adding criteria or changing criteria, I
11 think that's one of the points I made earlier in terms
12 of having to go back and rethink this in the sense of
13 what are other criteria that could or should be
14 considered. This is one of the issues that came up
15 when we had our subsequent discussions with Ministry of
16 Energy staff, they themselves and us actually spent
17 some time thinking about whether these were all the
18 criteria that should be considered or whether they are
19 other ones that should be taken into account as well.

20 Q. So, if there were other criteria, you
21 would agree were me that the overall scoring might be
22 different, in fact the straight line energy rate
23 structure might appear as the best alternative using
24 this methodology identified in Table C?

25 A. Depending upon the particular

1 criteria that you added. There could be other criteria
2 that you could add in which that particular approach
3 would come out weighing the least out of the three.

4 Q. Well, I am trying to get at the
5 question of, you have two alternatives and which one is
6 Ontario Hydro going to choose.

7 I would like to look now at the Ontario
8 government review of Ontario Hydro's environmental
9 assessment to see if there is any guidance in this
10 document as to which of the two alternatives, straight
11 line energy rate or straight line energy rate with a
12 service charge, might be more in keeping with the
13 government review. If I can ask you to turn to Exhibit
14 69.

15 A. I have got the document.

16 Q. Now, in the Ministry of Energy's --

17 THE CHAIRMAN: This review preceded the
18 study we are looking at now by about three years.

19 MR. ROSENBERG: Yes, Mr. Chairman.

20 Q. Looking at the principles which
21 Ontario Hydro should be looking at when it chooses
22 between Figure 2 model or the Figure 3 model --

23 MR. HARPER: A. Is there a particular
24 page reference?

25 Q. I am looking at page 14 of the

1 Ministry of Energy review.

2 A. Okay.

3 Q. Now, to put this in perspective, Mr.
4 Harper, today was the first day that the CAC was
5 advised that Ontario Hydro was even considering a
6 straight line energy rate.

7 Is there any prefiled material or any
8 interrogatory responses that would lead us to a
9 different conclusion, that in fact this Panel was
10 advised earlier than today that a straight line energy
11 rate was being considered by Ontario Hydro?

12 MR. B. CAMPBELL: I'm sorry, isn't it in
13 the analysis?

14 I understand that the proposal was that
15 the particular proposal was to have a service charge
16 and a flat rate structure after that. But it is clear,
17 I think Mr. Chairman, it's a little unfair for my
18 friend to say that there is no evidence that it has
19 been considered. It's quite clear from this document
20 that it has been considered.

21 MR. ROSENBERG: Q. Let's deal with the
22 question, Mr. Harper, directly. First Tab 15, the
23 document that was produced was not circulated to any of
24 the intervenors other than the MEA in this particular
25 hearing, the MEA and the government; correct?

1 MR. HARPER: A. No, I believe there was
2 staff in from -- representing, I am not too sure
3 whether it was the CAC or one of the environmental
4 groups, talking to Ontario Hydro and they were given a
5 copy of the draft. I suspect that's how the Consumers'
6 Association of Canada got a hold of it in order to
7 present it as part of their cross-examination
8 materials.

9 So, I don't think it was a secret or
10 something that we were trying to hide in any sense.

11 Q. When was the decision made? We saw
12 an interrogatory response looked at earlier, the one
13 from last April, that Ontario Hydro was looking at a
14 straight line energy service charge, their straight
15 line energy rate with a service charge, when was a
16 decision made to also look on an equal footing at a
17 straight line energy rate as another alternative?

18 A. I think that alternative came up
19 during some very preliminary discussions we had with
20 the Ministry of Energy staff back in February of 1991.
21 I think that's when it first got put on the table.

22 Q. And once again a question for the
23 Consumers' Association is, when we first found out that
24 Ontario Hydro was looking at the option on an equal
25 footing to service charge and straight line energy

1 rate, this morning was the first time we heard about
2 it, Mr. Harper. Is there any prefiled material or
3 evidence that would show us --

4 THE CHAIRMAN: When you say this morning
5 is the first time you heard about it, I don't
6 understand the basis for that comment.

7 MR. ROSENBERG: The basis for the
8 comment, Mr. Chairman, is in the interrogatory
9 response --

10 THE CHAIRMAN: No, no, this document we
11 have looking at for the last 25 minutes is something
12 that you had in your material which indicates
13 consideration of a straight line rate.

14 MR. ROSENBERG: Yes. But we assumed, Mr.
15 Chairman, that was an alternative that was looked at
16 and rejected.

17 THE CHAIRMAN: It hasn't gone any farther
18 than that at the moment. If I understand Mr. Harper's
19 evidence, nothing has been accepted or rejected at this
20 particular point in time.

21 MR. ROSENBERG: Well, I can put it no
22 higher than this. The CAC believes that the document
23 that we obtained in Tab 15 of our exhibit was an option
24 analysis and that all the other options were rejected,
25 and that the only option that Ontario Hydro was

1 actively considering as of this morning was the option
2 that we described as the straight line energy rate plus
3 a monthly service charge.

4 MR. B. CAMPBELL: Mr. Chairman, I thought
5 the evidence was quite clear that Mr. Harper's group,
6 the recommended proposal to Hydro senior management had
7 been the service charge plus the flat rate, and that
8 very recently the decision had been taken to go back
9 and focus more, by senior management to go back and
10 look at both again. I thought his testimony was clear
11 on that.

12 THE CHAIRMAN: I not sure we should be
13 importing the OEB hearings into this hearing. We are
14 here to consider the feasibility of demand management
15 plans, and I think we are spending a lot of time on
16 this and I am not sure, speaking for myself it's very
17 valuable time to the panel.

18 MR. ROSENBERG: Q. Now, Mr. Harper,
19 looking at the government review, page 14.

20 MR. HARPER: A. Yes, I have got that
21 page.

22 Q. In the first paragraph, page 14, it
23 starts with:

24 In light of the efforts being made in
25 other parts of the world to raise

1 efficiency in electricity use...

2 The government says, this is the second
3 sentence:

4 Possibilities for this would include
5 bidding systems that treat conservation
6 as a supply resource, modification of the
7 rate structures, programs to encourage
8 the substitution of other fuels, et
9 cetera.

10 A. I am sorry, I have what I thought was
11 Exhibit 69, page 14 has "E: Electricity Conservation"
12 at the very top of it?

13 Q. No, that is a different Ministry.

14 A. I apologize.

15 Q. The first ministry's comments are
16 Agriculture and Food, and then the second is Ministry
17 of Energy.

18 THE CHAIRMAN: I have the same problem
19 Mr. Harper has. I am looking at the energy ministry,
20 and page 14 is electricity conservation, is the
21 heading.

22 MR. ROSENBERG: Well, I can tell you what
23 page I have. These page numbers, unfortunately, aren't
24 consecutively numbered. But if you start off at the
25 beginning, and it goes through, Part One, Approvals

1 Requested. I am going to turn the pages quickly.

2 THE CHAIRMAN: What are we looking at
3 now, please?

4 MR. ROSENBERG: Exhibit 69.

5 THE CHAIRMAN: Which Ministry?

6 MR. ROSENBERG: Ministry of Energy. See
7 at page 9 it lists Ministry and agency comments, and
8 the second is --

9 THE CHAIRMAN: Hold it, just a minute.
10 It doesn't do that at all in my exhibit.

11 MR. ROSENBERG: Right at the beginning.

12 THE CHAIRMAN: My document begins:
13 "Review of Ontario Hydro's Draft Demand/Supply Planning
14 Strategy, Ministry of Energy, July 1988". That's the
15 first cover page and starts with a series of A to J,
16 starting with an introduction of the general
17 strategies.

18 MR. B. CAMPBELL: I think, Mr. Chairman,
19 the confusion is that my friend is referring to the
20 review prepared pursuant to the environmental
21 assessment.

22 THE CHAIRMAN: That's 249.

23 MR. ROSENBERG: No, Exhibit 69.

24 THE CHAIRMAN: That's why I said three
25 years ago and you said, yes it was.

1 MR. ROSENBERG: I'm sorry. This was May
2 1990, Mr. Chairman.

3 THE CHAIRMAN: That is a different
4 document.

5 MR. ROSENBERG: I might have the wrong
6 exhibit number written on it.

7 THE CHAIRMAN: What have you got written
8 on it?

9 MR. ROSENBERG: I have 69 written on it.

10 THE CHAIRMAN: No, that's wrong. It's
11 249. I always forget that number.

12 MR. B. CAMPBELL: No, 249 is a different
13 exhibit.

14 MR. WATSON: I think it is 146.

15 THE CHAIRMAN: All right, 146.

16 MR. ROSENBERG: Now that we have gone
17 this far, why don't we take a minute to find it.

18 THE CHAIRMAN: 146, all right.

19 MR. B. CAMPBELL: We are obtaining a copy
20 of it.

21 MR. HARPER: I think we are ready.

22 MR. ROSENBERG: I apologize for that. I
23 have crossed out Exhibit 69 on the front of mine.

24 MR. HARPER: Page 14?

25 MR. ROSENBERG: Page 14.

1 MR. B. CAMPBELL: Of the Ministry of
2 Energy comments?

3 MR. ROSENBERG: Ministry of Energy
4 comments, yes.

5 MR. HARPER: Okay, I have got the page.

6 MR. ROSENBERG: Q. I am interested in
7 the first paragraph in the conclusion C3, so that we
8 can put rate structures in the perspective of the
9 Ministry of Energy comments. Reading the first
10 paragraph, and in particular, the second sentence it
11 says:

12 Possibilities for this would include
13 bidding systems that treat conservation
14 as a supply resource, modification to the
15 rate structures and other uses.

16 And then in the conclusion, Mr. Harper,
17 it says:

18 Ontario Hydro should present further
19 information to the Board to allow a
20 comparison of the costs, risks and
21 benefits of additional conservation as an
22 alternative to some of the supply
23 facilities described in the plan.

24 Now, the question is, Mr. Harper, do you
25 agree, first, with the Ministry of Energy's proposition

1 that modification of rate structures could impact on
2 efficiency in electricity use in this province?

3 [12:20 p.m.]

4 MR. HARPER: A. Yes.

5 Q. And that depending on the type of
6 rate structure you design, you could have a greater or
7 lesser impact on efficiency in conservation?

8 A. Yes.

9 Q. And that Figure 2 rate structure -
10 that is, a straight line energy rate structure - would
11 very likely of the two being looked at provide greater
12 conservation incentives than a straight line energy
13 rate with a service charge?

14 A. Yes.

15 Q. The Ministry of the Environment also
16 made comments about rate structures.

17 A. Before we leave that--

18 Q. Yes?

19 A. --perhaps I think this highlights to
20 some extent this business I was talking about earlier
21 of implicating objectives because if we go back to the
22 Exhibit 69 we are all looking at, originally, the
23 Ministry of Energy in there also expresses continuing
24 support for the strategy element 1.5, it talks about
25 cost-based rates.

1 So, I think again, and if you remember my
2 discussion in terms of what were the pluses and minuses
3 on the two alternatives, I think consistency with the
4 cost of service was the one thing that was highlighted
5 in our proposal.

6 So again, I think there are a number of
7 objectives people can have and you have to weigh off
8 those various objectives in making your decisions.

9 Q. But would you also agree with me that
10 is why it is important to keep your primary objective
11 always in focus so that you don't do something
12 counterproductive or inimical to that prime objective?

13 MR. WILSON: A. Could I interject at
14 this point? The prime objective was to meet the people
15 of Ontario's need for electricity service at the lowest
16 total cost. Within that, there are a number of
17 sub-objectives and to characterize load reduction or
18 strategic conservation as the number one objective is
19 incorrect because it is a means to an end, not an end
20 in itself.

21 Q. Hasn't the prime objective of Hydro
22 changed or the goal changed from providing electricity
23 service needs to lowest financial cost to providing it
24 at the greatest value to the customer?

25 A. Yes.

1 Q. So, in terms of providing the --
2 maybe I will go back. Is it now to provide the energy
3 service needs or the electricity service needs, Mr.
4 Wilson?

5 A. When we started this process, it was
6 the electricity service needs.

7 Q. And now it is?

8 A. It may be more -- it is broader I
9 believe now. Certainly with the change in the Power
10 Corporation Act, I think we will have to reconsider
11 that definition.

12 Q. Now, going back to the Ministry of
13 the Environment review, page 5, the third paragraph -
14 the Ministry of the Environment, page 5--

15 MR. HARPER: A. Yes, I have got page 5.

16 Q. --the third paragraph, it says:

17 Rate design is an important component
18 of demand management. Flat rates are --

19 THE CHAIRMAN: Hold it. You say it is
20 the third paragraph?

21 MR. ROSENBERG: The third paragraph, yes,
22 Mr. Chairman, page 5.

23 THE CHAIRMAN: Oh, page 5. All right.

24 Okay, I have got you.

25 MR. ROSENBERG: Q. Now, the Ministry of

1 the Environment said in 1990 in June:

2 That rate design is an important
3 component of demand management. Flat
4 rates or declining block rates appear to
5 offer little or no incentive for
6 conservation or reduced usage and to
7 encourage consumption. Hydro should
8 fully assess the environmental and
9 economic consequences of alternative rate
10 designs for all customer classes to
11 estimate the maximum energy conservation
12 potential of a rate design.

13 Now, first, Mr. Harper, do you agree that
14 with the Ministry of the Environment's statement that
15 Hydro should fully assess the environmental and
16 economic consequences of alternative rate designs for
17 all customer classes so as to estimate the maximum
18 energy conservation potential rate of design?

19 MR. HARPER: A. Ideally, yes. I think
20 as Mr. Burke was saying, there's some problems often in
21 this area if you are looking at alternative rate
22 designs and the amount of information that we actually
23 have in order to try and determine precisely what
24 customer response would be to alternative rate
25 structures, so it may be laudable in theory. I am not

1 too sure if the information exists to actually do a
2 comprehensive analysis in practice.

3 Q. Has Hydro undertaken any such
4 analysis as requested by the Ministry of the
5 Environment?

6 A. No, we have not.

7 Q. With respect to the \$6 billion that
8 is now being allocated to demand management, do you
9 expect that any of those additional funds will be used
10 to analyse rate structures in line with the
11 recommendation of the Ministry of the Environment?

12 A. We currently have existing ongoing
13 programs as we talked about earlier, the time-of-use
14 rate experiment to try and understand how customers
15 will respond to different rate structures. So we are
16 doing some of that already and I suspect we will
17 continue to do that sort of analysis on alternate rate
18 structures, yes.

19 Q. Now, just to take the two examples
20 that we have before us, the straight line energy rate
21 and the straight line energy rate with a service
22 charge, has Hydro fully assessed the environmental and
23 economic consequences of those two competing rate
24 structures with respect to the residential customer
25 class to determine the maximum energy conservation

1 potential with respect to each?

2 A. No, we have not.

3 Q. Or the economic effect of either of
4 those two options?

5 A. I think directionally, and that is
6 what we have tried to capture in that table, we have
7 been trying to indicate what we believe is the relative
8 effects of the two, but we haven't done any detailed
9 analysis, no.

10 Q. Do you expect to undertake a detailed
11 economic analysis between now and the time when you
12 have to make a decision between the straight line
13 energy rate and the straight line energy rate with the
14 service charge?

15 A. I think I would have to clarify what
16 you mean by economic analysis. The thrust here is not
17 to change the total revenue requirement that is going
18 to be collected from residential customers.

19 So to that extent, I think if you are
20 thinking about economic analysis in any macro sense I
21 don't think that is that is going to bear to a large
22 extent on it.

23 What we have done in the context of this
24 particular proposal as we have done to date is spent a
25 fair bit of time in looking at an economic analysis on

1 a micro basis in the terms of what types of customers
2 will be impacted and what the impacts on those
3 particular customers would be, what types of customers
4 they are - are they Northern Ontario, Southern
5 Ontario - are they low income customers, high income
6 customers, farms, general service? So that type of
7 work we have done in terms of to understand the results
8 of the two proposals that we have before us.

9 Q. Well, let me give you a specific
10 example and maybe you can tell me whether you have done
11 the work, the economic work.

12 If you look at a straight line energy
13 rate versus a straight line energy rate with a service
14 charge, has Hydro undertaken any economic analysis to
15 determine what effect that rate structure would have on
16 GDP or GNP?

17 A. No. I could ask Mr. Burke to
18 comment, but like I said, in my own view, given that we
19 aren't changing the total amount of money that is being
20 collected, I don't know whether such an analysis would
21 show up any material differences.

22 Q. Mr. Burke?

23 MR. BURKE: A. Well, certainly we are
24 talking about very small effects, but I think the piece
25 of information that is still missing in all of this is

1 the degree of customer response to the change in rate
2 structure. And while one could do sensitivity analysis
3 on that, I don't think that you could -- you couldn't
4 nail it down very hard.

5 Q. Well, in terms of sensitivity
6 analysis, looking again at Exhibit 299, isn't the
7 sensitivity analysis in Hamilton the difference between
8 a 5.3 cent marginal rate versus a 6.48 cent marginal
9 rate?

10 A. Well, I don't think that is Mr.
11 Harper's evidence. I think he suggested to you that
12 your example in Figure 3 was not the way they were
13 intending to propose it. It would be 6.48.

14 Q. I apologize. There are two options
15 and I am looking at the first one, a straight line
16 energy rate. The difference would be 6.48 versus 5.3
17 and a straight line energy rate with a service charge
18 would be 5.79 versus 5.3.

19 Does that help you, Mr. Burke?

20 A. Well, yes, but ...

21 Q. So, the sensitivity analysis that you
22 would be looking at with respect to a straight line
23 energy rate model is approximately a 22 per cent
24 increase; that is from 5.3 to 6.48 versus approximately
25 a 10 per cent increase, from 5.3 to 5.79, correct?

1 A. Yes, but this is just one utility
2 and I think Mr. Harper's evidence is that the average
3 change would be somewhere between 2 and 3 per cent.
4 You may have picked an exceptional case here.

5 MR. HARPER: A. I think the other point
6 that maybe I can help clarify is that is looking at the
7 change in end rate. I think you also would want to
8 look at what is the change in the overall bill that the
9 customer is paying. And under any of those proposals,
10 you would find that there are customers whose bill
11 would actually go down compared to what they are paying
12 now and other customers whose bill would go up.

13 That gets back to the discussion we were
14 having earlier about what is the distribution of
15 customer usage around the average in the utility.
16 The average in Hamilton Hydro is 698 kilowatthours a
17 month for 1989, but there is going to be customers
18 quite a bit lower than that and probably customers
19 higher than that.

20 So, just using those two pieces of
21 information probably isn't sufficient because there
22 will be households whose total electricity bill will go
23 down. There will be other households whose total
24 electricity bill will go up.

25 Q. Does Hydro have any plans to put

1 right on a customer's bill the marginal cost of
2 - electricity to them so that they would understand what
3 the kilowatthour charge would be so that they might be
4 able to make some rational decisions based on their
5 marginal cost of electricity service?

6 A. That was part of the overall proposal
7 in terms of our own rural retail system.

8 One of the things about simplifying the
9 structure to a service charge plus a straight line
10 energy rate is it is much easier to display on the bill
11 how the actual bill is calculated and show to the
12 customer there is a fixed charge, here is how many
13 kilowatthours you used each month, multiply each
14 kilowatthour by 'X' cents per kilowatthour and allow
15 the customer to see precisely how the bill is
16 calculated.

17 So, I think, yes, that was one of the
18 things we were going to do in conjunction with the
19 changeover in the rate structure in order to give the
20 customer a clearer understanding of how his bill is
21 calculated.

22 Q. Now, if I can about go back to Mr.
23 Burke so I can understand what the sensitivity analysis
24 would be if you were just to look at Hamilton Hydro.

25 Would, in fact, an economist look at what

1 the effect would be in raising the marginal cost from
2 5.3 cents per kilowatthour to, in case No. 1, 6.48
3 cents versus the marginal effect of raising it from 5.3
4 cents to 5.79 cents?

5 MR. BURKE: A. Well, you would also have
6 to try to assess the effect of reducing the fixed
7 charges in the course of all of that.

8 Q. I take it that that work hasn't been
9 done for Hamilton Hydro specifically or system-wide
10 with respect to the two alternatives, a straight line
11 energy rate or a straight line energy rate with a
12 service charge?

13 A. I am not aware of that having been
14 done, no.

15 Q. Now, I would like to bring your
16 attention to certain excerpts from the Ontario Energy
17 Board and compare these two alternatives relative to
18 certain findings that the Ontario Energy Board has made
19 in the last few years with respect to Hydro's rates.
20 And I turn your attention to Tab 11 of Exhibit 298.
21 And in particular, at page 1153 -- excuse me, 1152 of
22 Tab 11, there is a quote from HR 16.

23 Mr. Harper, can you just please describe
24 what HR 16 was for the Board so that we can put these
25 comments in context?

1 MR. HARPER: A. HR 16 would have been
2 the Ontario Energy Board hearing into Ontario Hydro's
3 proposed rates for 1988 and it would have taken place
4 during the April to July period of 1987.

5 Q. On page 1152, the Board writes:

6 That in questioning the wisdom of
7 trying to achieve economic efficiency
8 through applying market-based cost
9 concepts to net income, Hydro this year
10 quoted from HR 5, "the Board, therefore,
11 concludes that economic efficiency is not
12 a valid pricing objective".

13 It goes on to state in having looked at
14 Hydro's submission regarding HR 5, the Energy Board
15 states:

16 It should be clear from the reports of
17 the Board in HR 14 and HR 15 that recent
18 panels of this Board do not subscribe to
19 this view. As noted above, while
20 economic efficiency may not be easily or
21 precisely defined in most business
22 situations, it is nonetheless a useful
23 concept and a much agreed upon objective.
24 In moving toward economic efficiency in
25 whatever manner, one aims to get as close

1 as one practically can and remembers that
2 it is better to be approximately right
3 than to be precisely wrong; misusers of
4 the theory of the second best to the
5 contrary.

6 Now, given that view of the Ontario
7 Energy Board panel in HR 14 and HR 15, with respect to
8 the two rate structure proposals that Ontario Hydro is
9 currently looking at, a straight line energy rate
10 versus a straight line energy rate with a monthly
11 service charge, in your view, Mr. Harper, which one
12 would more approximate economic efficiency and which
13 would not?

14 A. I think we would have to first start
15 off by trying to establish what we meant by economic
16 efficiency. And if we take that to mean trying to set
17 prices that are reflective of Hydro's marginal or
18 avoided costs and that has been the way you view
19 yourself as trying to achieve economic efficiency, then
20 I would say the proposal of the service charge with the
21 straight line energy rate is the better of the two
22 because as I have said in our earlier discussions,
23 currently, our avoided costs for serving residential
24 customers - I think that information was provided to
25 you in a Panel 3 interrogatory - is less than our

1 rates. And if you were just to, on a simplistic basis,
2 compare our end rate with an avoided cost, you would
3 say that the proposal with the service charge is the
4 closer of the two.

5 Q. That is because it tracks costs?

6 A. No. On this very simple comparison
7 we are making, that is simply because if I look at the
8 avoided costs for supplying residential customers and I
9 compare that with either 6.48 or 5.79, I am just doing
10 as simplistic a comparison as which one is the closest
11 to avoided cost and the 5.79 is closer.

12 So, that is all I was doing in that
13 particular exercise, which I assume may be part of what
14 the Board is talking about here in terms of trying to
15 get closer as opposed to further away.

16 Q. Now, what would the other side of
17 that argument be, Mr. Harper?

18 A. Sorry, the other side of the
19 argument?

20 Q. What would be the argument in favour
21 of a straight line energy rate -- 6.48 cents is a
22 better proxy for the market price of electricity in
23 terms of promoting economic efficiency?

24 A. I am not too sure if you are asking
25 me to cut my own throat here or what, but we will ...

1 I think we have had some discussions
2 about how the market system does or does not work very
3 well. Often consumers don't have all the information.
4 There are other market barriers. Consumers frequently
5 require payback periods that are shorter than what
6 Ontario Hydro uses. That is one of the reasons we have
7 programs in the residential, commercial and industrial
8 area.

9 So, one could argue that a higher price
10 perhaps is required to overcome some of those
11 particular barriers. I don't think it is as good a
12 tool as programs, as I said in my direct. It is not
13 quite as focused on the particular areas you are trying
14 to get at, but I think what is the kind of argument you
15 would make.

16 I think it is harder to figure out
17 exactly what the final number should be in that case.
18 We have enough trouble trying to define rates based on
19 avoided costs without rates based on these other market
20 barriers as well.

21 [12:40 p.m.]

22 Q. There is one other point, since we
23 are looking at this report at this time. Actually, I
24 think I will pass on that point.

25 Yes, Mr. Campbell, I am finished on that.

1 MR. B. CAMPBELL: Mr. Chairman, just
2 before continuing. This section of the report that my
3 friend has referred to, I think it is only fair to
4 point out that the issue of economic efficiency with
5 respect to the determination of Ontario Hydro's net
6 income and a market-based return on equity issue, which
7 is the section of the report that he referred to, was
8 subsequently examined by the OEB. My friend has not
9 referred to the fact that in the 1990 hearing for 1991
10 rates there was a special supplementary hearing held in
11 the fall of 1990 that dealt specifically with the very
12 matter that the Board was commenting on here which had
13 only been raised -- was not a part of the specific
14 reference for HR 16.

15 So, for the sake of completeness of the
16 record, because of the specific references that my
17 friend has made, I thought that should be drawn to the
18 Board's attention. In particular, they made some
19 comment about the application of the theory of the
20 second best and economic efficiency arguments with
21 respect to return on equity and the very matters that
22 my friend quoted.

23 - Just for the completeness of the record,
24 this is not the most recent OEB consideration of the
25 matter, nor did these comments that he has referred to

1 take place in the context of a special hearing to
2 consider that, which is what the later hearing did.

3 MR. ROSENBERG: If I can continue, Mr.
4 Chairman?

5 THE CHAIRMAN: Yes.

6 MR. ROSENBERG: Q. I would like to turn
7 to the question of inverted rates. Now, Mr. Harper, we
8 have examined a straight line rate and a straight line
9 energy rate with a service charge, and I believe we put
10 it at least in some context of the Ministry of
11 Environment and Energy's comments on the Demand/Supply
12 Plan.

13 Could you briefly describe what an
14 inverted rate structure is and why it is not one of
15 the -- or why an inverted rate structure is not one of
16 the options that Ontario Hydro is currently looking at?

17 MR. HARPER: A. An inverted rate
18 structure would almost be the opposite to the declining
19 block rate structure we have right now, whereby, in
20 each month the first kilowatthours sold are sold at one
21 rate and then there is a block point, say for
22 illustrative purposes 250 kilowatthours like we have on
23 our declining block, and any electricity sold over 250
24 kilowatthours has a higher energy rate per
25 kilowatthour.

1 Q. The question is: Hydro has declining
2 block rate structures, you have looked at a flat rate
3 structure and a flat rate structure with a service
4 charge, why have you not looked at an inclining or
5 inverted rate structure?

6 A. I think we provided some comments on
7 that in the particular draft report that you submitted
8 in your cross-examination materials.

9 The inverted rate structure by itself
10 really does absolutely nothing to address this issue of
11 customer charges, customer-related costs.

12 You can combine an inverted rate
13 structure with something like a service charge.
14 However, then really what the inverted rate structure
15 is doing is looking at how best to collect say the
16 variable costs of supply associated with supplying
17 electricity within a municipal utility.

18 I think in the discussions we had with
19 Mrs. Mackesy, I indicated there were a number of
20 reasons why one would potentially consider introducing
21 an inverted rate. One would be for the perceived
22 social assistance it gives. I guess in that particular
23 regard our view is that, (1), as I talked about with
24 Mrs. Mackesy, it doesn't necessarily get at the low
25 income people, and, (2) using rates in that way was a

1 conclusion that the Ontario Energy Board came to in its
2 HR 5 that we shouldn't be doing.

3 The second reason you could do it is that
4 you believe it's a better way of tracking costs. And
5 for all intents and purposes, I think most of the
6 utilities that apply it, apply it because they view
7 their marginal cost or their avoided cost as being
8 higher than their average costs, and this is one way of
9 getting that marginal cost signal into their rate
10 structure.

11 I think, (1) as we have talked about
12 already, that situation doesn't exist here right now,
13 and, (2), I am not even too sure in the sense of when
14 you are doing that, it's the appropriate thing to do,
15 because you are not telling all customers what that
16 marginal cost of supply is; you are only telling
17 customers beyond a certain inversion point.

18 Also, when it comes to tracking costs, I
19 think most of the utilities that actually apply
20 inverted rates, when they have been surveyed, have a
21 hard time relating the inverted rate structure to their
22 cost. And generally the conclusion coming out of that
23 is they don't seem to track costs very well.

24 Probably a good example of that is if you
25 think customers as being on residential time-of-use

1 rates and that indicating to customers that it costs
2 more to supply them in the peak period than it does in
3 the off-peak period, inverted rate doesn't make that
4 distinction to them.

5 So, I guess to some extent we saw
6 inherent in the inverted rate many and more of the
7 problems than were inherent in the straight line energy
8 rate without the service charge, and that's why in the
9 rent it wasn't included. Plus the fact as I said, by
10 itself it didn't seem to get at this customer cost
11 issue at all.

12 Q. Just one question on HR 5, you
13 mentioned HR 5 as reason not to look at inverted block
14 rates. Given HR 14 and 15, which we have just drawn
15 your attention to, is that still a valid rationale
16 for --

17 A. I think we are getting at two
18 different issues here, and I think this is often what
19 the confusion is on inverted rates, is people have to
20 try and decide, what are my objectives in introducing
21 them. I think HR 5 specifically was talking about and
22 addressing the issue of using inverted rates or using
23 rate structures for income redistribution or for some
24 form of social assistance. That was the comment they
25 were making.

1 I think the comments being made in the
2 HR 16 report hear are more related to costs, which I
3 think was the second reason I was talking about as why
4 frequently utilities look at this particular rate
5 structure. So, I don't think there is any
6 inconsistency between the two.

7 Q. There are a number of utilities which
8 use inverted block rates and our investigations tell us
9 that electric utilities in California have inverted
10 residential rate structures, are you aware of that?

11 A. Yes, that's my understanding, that's
12 by statute. There was a legislation passed in the
13 California Legislature requiring them to do so.

14 Q. And that there are 160 distribution
15 utilities served by the Tennessee Valley Authority that
16 have inverted residential rates?

17 A. Yes, that would be because the
18 Tennessee Valley Authority regulates those particular
19 utilities and insists that each of them apply inverted
20 rates to their particular situation.

21 Q. As well, getting closer to home, that
22 Hydro Quebec has inverted residential rate structures?

23 A. Yes, Hydro Quebec is the only utility
24 in Canada that has them.

25 Q. The purpose of Hydro Quebec's

1 inverted residential rate is to send the correct price
2 signal to its space heating customers?

3 A. Sorry, are you reading from something
4 in particular?

5 Q. I am reading from my notes. I have a
6 reference.

7 A. I believe what you reading from is
8 the material that was in the cross-examination
9 materials here which was a study done by Toronto Hydro
10 and one of the people they talked to was Hydro Quebec
11 and the view of trying to reflect the higher cost of
12 space heating.

13 Again, I think that gets to what is
14 perhaps your avoided cost versus your average cost of
15 supply.

16 Q. So, is it your understanding that in
17 terms of what Hydro Quebec has articulated is the
18 reason for inverted residential rates is to send the
19 correct price signal to its space heating customers?

20 A. I think that was of the understanding
21 when it was implemented. I am not too sure if that's
22 still the case today in terms of how the rates are
23 developed on a year to year basis.

24 Frequently what happens with these rates
25 is they are put in place and then changes from year to

1 year are almost like proportional increases or
2 lock-step increases along with everything else. I
3 think this is why some of the utilities have a
4 difficult time relating their inverted rate structure
5 to their cost base.

6 Q. I am just talking about what Quebec
7 Hydro's articulated reason is.

8 A. I guess in that sense, I read the
9 same materials that you did and I presume that was
10 talking about when they implemented the rate to begin
11 with.

12 Q. And going back to the quote from
13 HR 16, would you accept the conclusion from that is
14 that Quebec Hydro felt that it is better to be
15 approximately right than to be precisely wrong and
16 that's why they have chosen inverted block rates for
17 their residential space heating load?

18 A. I don't know. For me to comment on
19 sort of the underlying rationale as to why Hydro Quebec
20 proceeded and to relate to OEB comments, I don't have
21 enough information to do so.

22 Q. Now, with respect to the cost
23 tracking issue, is it not possible that the last block
24 rate of an inverted block rate schedule could better
25 track the full, that is economic and social costs of

1 electricity consumption, than a straight line energy
2 rate?

3 A. I am struggling a lot here.

4 I guess one would have to decide that one
5 was able to fully define what that full social and
6 economic cost was. And if you were constrained by a
7 particular revenue requirement which did not yield an
8 average rate that was equivalent to that, one way of
9 setting a rate structure so that was in your rate
10 somewhere would be to have an inverted rate where that
11 applied for incremental consumption over a certain
12 point.

13 One of the problems with that is, as I
14 said earlier, is depending on where you set your
15 inversion point, you are going to find there are a
16 large number of customers who on an incremental basis
17 are not seeing that as the price signal. And almost to
18 the extent that if you assume that that inverted rate
19 is higher, you have to have the first block being
20 considerably lower, and so they are seeing a price that
21 would be below the straight line energy rate. I think
22 this is one of the inherent problems with trying to
23 decide whether there is a conservation effect arising
24 out of such set rates, is that fact that typically what
25 happens is some customers are paying more, some

1 customers are paying less, and it is a function of on
2 net how does that all come out.

3 I think the materials we are talking
4 about with Toronto Hydro, if you look at other pages of
5 that, you will find that the observation made in their
6 particular review was that there was no after-the-fact
7 studies that have been done in terms of trying to
8 establish whether or not a conservation effect had
9 taken place or not.

10 Q. You are talking about Toronto Hydro,
11 why don't we turn to that at Tab 17. Could you please
12 put Tab 17 into context. What is this report?

13 A. Well, it's a report prepared by
14 Toronto Hydro. I think if you look at the very first
15 page, it says 13.8 kV Conversion Program, Rates and
16 Economics. I think as people may be aware, Toronto
17 Hydro is undergoing a fairly major conversion program
18 of its distribution network in terms of upgrading it
19 and replacing it, and this was part of an overall study
20 that was looking at both the cost of doing that and
21 also perhaps some ways of trying to ameliorate or
22 postpone having to actually going ahead and do it, and
23 to that extent I think what they were doing was
24 surveying different alternatives in terms of rate
25 structures and rates to see whether or not any of those

1 provided an opportunity to them to basically ameliorate
2 their growth in load and perhaps help offset the need
3 to undertake this particular conversion program or a
4 part of it. But again, that's my understanding of it.
5 It's a Toronto Hydro study.

6 Q. Well, in answer to my question about
7 cost tracking you referred to the difficulty in setting
8 the boundaries between the blocks, Mr. Harper, and at
9 page 72 of that report, Toronto Hydro discusses the
10 difficulties about setting the block boundary level.

11 Do you have that page?

12 A. Yes, I have page 72.

13 Q. And the first sentence of the first
14 paragraphs says, "The setting of a block boundary level
15 was a matter of judgment."

16 Now, would you agree with the report that
17 it is, in fact, a matter of judgment and it is not as
18 yet a science?

19 A. Yes.

20 Q. And going to the second paragraph, do
21 they not, in fact, set a block boundary at 500
22 kilowatthours per month?

23 A. Yes, they do. Basically as you said,
24 that's something that they have done based on their
25 judgment. I think it is important to note that this

1 particular rate they are developing here is really an
2 illustrative rate. I think they themselves expressed
3 some concerns about how they have developed the
4 difference between the first block and the second block
5 in terms of the pricing. If we go to the their final
6 conclusions on inverted rates, I think they view them
7 as being problematic for Toronto Hydro customers.

8 Q. Now, in terms of what this report is
9 doing, is it not in fact putting forward a residential
10 inverted rate structure?

11 A. I think what it was trying to do was
12 develop an illustrative rate structure based on
13 inverted rates, and then see to what extent that
14 illustrative structure might impact on demand, and
15 again this was all fairly hypothetical, and then on
16 that basis see whether or not it had a material impact
17 on demand.

18 I think if you go to the final
19 conclusions, I think they conclude that this is not
20 something they should be doing.

21 Q. Let's look at the 500 figure. Do you
22 have any concern with the 500 kilowatthour per month
23 being the appropriate break point in an inverted block
24 rate structure? Have you come to some other considered
25 judgment on it?

1 A. I think to come to a considered
2 judgment you would have to look at a number of factors
3 associated with the utility, and I think that's what
4 they are trying to suggest here. They were looking at
5 the distribution of the use amongst the various
6 customers. And I think maybe for want of an easy way
7 of doing it, the 500 kilowatthours a month just
8 represents the fact that half of the bills in Toronto
9 Hydro typically come to a number less than 500, and
10 have the bills in Toronto Hydro come to a number
11 greater than 500.

12 I think they have enunciated here some of
13 the other concerns that you might want to look at when
14 you were picking that inversion point in terms of what
15 types of loads are typically covered by that.

16 So, I think for me to comment on a
17 particular inversion point for a particular utility
18 would require having to go through some thinking and
19 having some data available to me, probably similar to
20 what Toronto Hydro did.

21 I don't know whether there is a rule of
22 thumb you could come up with to try and say, this is
23 the way it should be done for every utility in Ontario.
24 As a matter of fact, I am pretty sure there isn't,
25 given the anomalies that we have and I think the

1 difference we saw between the Hamilton Hydro result of
2 our proposal and what would be the average result.
3 There is always utilities that seem to pop out at the
4 end of either extreme.

5 Q. On page 74 of the report they look
6 the impact on monthly bills, and one of the concerns
7 you had was the impact an inverted rate structure would
8 have on monthly bills. Now, Toronto Hydro has
9 calculated that a switch to inverted rates in 1991
10 could have the bill impact shown on page 74; correct?

11 A. Yes.

12 Q. And could you just briefly describe,
13 starting with 500 kilowatthours per month, that's the
14 break point, what impact an inverted rate structure
15 would have?

16 A. Well, I think it is important to
17 clarify. What you are looking at here is the total
18 monthly bill by the customer. So what you are doing
19 is, at each of those consumption points, be it 500
20 kilowatthours per month, all the way up to 3,000
21 kilowatthours per month, you are looking at what is the
22 monthly bill in the first column on the left under the
23 current rates that the customer is paying, given that
24 level of consumption; on the second column, what
25 Toronto Hydro has basically done is taken the inverted

1 rate structure they have worked up on the previous page
2 and applied that to the monthly kilowatthours of
3 consumption in order to work up the monthly bill under
4 the inverted rates; third column is just a dollar
5 change; the fourth column is, I assume, just a
6 percentage over the declining block rate in terms of
7 what is the percentages change in the total monthly
8 bill.

9 Q. So, looking at these price changes
10 then, at the lowest end, 50 kilowatthours per month, a
11 very low consumer of electricity, they would pay \$4.60
12 more per month?

13 [1:00 p.m.]

14 A. Yes. Basically, all you are doing is
15 taking the 50 kilowatthours a month and running it
16 through the two rate schedules.

17 Q. Which on a low base would represent a
18 77 per cent increase?

19 A. Right. This is one of the things you
20 have got a high percentage increase but really a low
21 dollar impact.

22 Q. Whereas going to the other extreme,
23 the high energy users at 2,000 and 3,000 kilowatthours
24 per month, they would experience a much higher net
25 increase in their dollar or in the amount of their

1 monthly bill, correct?

2 A. Yes.

3 Q. In fact, somebody using 3,000

4 kilowatthours per month would experience a \$36.86
5 increase, correct?

6 A. Yes.

7 Q. Now, have you done any analysis like
8 this with respect to the difference between the
9 straight line energy rate and a straight line energy
10 rate with a service charge?

11 A. If not precisely in this format, yes,
12 we have done similar analysis for those two
13 alternatives in terms of looking at what would be the
14 impacts for, I think we characterized them as low use
15 customers.

16 If you look at this chart, it almost
17 boils down into three groupings. You have got the very
18 low use customers who see an impact. You have what I
19 would characterize as the medium use customers who see
20 a reduction in their bill. And then you have the high
21 use customers who see an impact in their bill.

22 I think we did do some analysis to look
23 at what would be the impact on customers' bills for low
24 medium and high use customers under those two
25 particular proposals.

1 Q. Do you have a reference for me? I
2 see we are at the lunch break. Is there a reference
3 that you are looking at in particular, or is that not
4 before the panel?

5 A. No. Actually, what I am looking at
6 here is the material that we are talking about.

7 Q. And in terms of doing the same type
8 of analysis on a residential consumer's monthly bill
9 with respect to a straight line energy rate and a
10 straight line energy rate with a service charge, has
11 Ontario Hydro undertaken such a rate impact analysis or
12 a bill impact analysis?

13 A. As I said, yes, not exactly in this
14 particular way of those particular things, but we have
15 looked at low, medium and high use customers to try and
16 get a feel for what is the impact on those different
17 types of customers of the two alternatives.

18 Q. Can you give me a cite for that?

19 A. I don't believe it is in the evidence
20 anywhere. I am sorry, Mr. Burke has just reminded me
21 here, if you turn to that report we were talking about
22 earlier, the service charge report.

23 Q. Tab 15?

24 A. Yes, around page 13 or so. Again,
25 this becomes rather difficult because we have a large

1 number of municipal utilities. And so what we were
2 trying to do here was capture for the municipal
3 utilities, as I said, for low usage, average usage and
4 above average usage what would be the percentage impact
5 on their bills and also for our own rural retail
6 system.

7 On page 13 here what you have is the zero
8 service charge; and if you go over to page 14, the
9 second analysis on the bottom half of the page gives
10 you the results for our proposal.

11 Q. And other than this study then, that
12 is the extent of Ontario Hydro's work in looking at
13 bill impacts?

14 A. Well, as I said, this essentially
15 reports the results of analysis we were doing. In
16 order to get the high side illustrative results, we did
17 go and do particular analysis on a number of specific
18 utilities that we suspected given their cost and load
19 characteristics would come out on the high side in
20 order to verify these numbers.

21 MR. ROSENBERG: Thank you. Those are my
22 questions.

23 THE CHAIRMAN: Have you finished your
24 examination; is that what you mean?

25 MR. ROSENBERG: No.

1 THE CHAIRMAN: I mean, you want to
2 continue after the break?

3 MR. ROSENBERG: I will continue after the
4 break, yes.

5 THE CHAIRMAN: All right. We will
6 adjourn until 2:30.

7 THE REGISTRAR: This hearing will adjourn
8 until 2:30.

9 ---Luncheon recess at 1:05 p.m.

10 ---On resuming at 2:33 p.m.

11 THE CHAIRMAN: Be seated, please.

12 Mr. Rosenberg?

13 MR. ROSENBERG: Mr. Chairman, the clerk
14 has just passed out Exhibit 6 and I would just like to
15 turn to that now. As you may recall, Mr. Shalaby
16 kindly gave us this reference to Exhibit 6 earlier this
17 morning. And in particular, I would like to ask you to
18 turn to page 8-9 of Exhibit 6 and as well, to pages 61
19 and 62 of Tab 1 of Exhibit 298 which was an
20 interrogatory response regarding a breakout of demand
21 management expenditures over the lifetime of the plan.

22 I had asked the panel if there was any
23 information that could track supply side expenditures
24 over the planning period with demand expenditures and
25 Mr. Shalaby advised us to look at Exhibit 6 and we have

1 done that.

2 Q. I am now looking at Exhibit 6, page
3 8-9. I don't know whether it is Mr. Shalaby or Mr.
4 Harper who can help me here, but either one of you, if
5 you could just explain the Figure 8.3-1 and relate it
6 to the interrogatory response at 4.12.49.

7 MR. SHALABY: A. Well I can explain
8 8.3-1. The relating is going to be a little more
9 involved, and I am not sure it is even meaningful to
10 relate numbers that are describing different things,
11 but let's just take one thing at a time.

12 8.3-1 on page 8-9 of Exhibit 6 gives an
13 illustration of what the dollar expenditures on various
14 parts of the Demand/Supply Plan components are going to
15 be.

16 We presented net present value costs
17 allocated to different time periods and levelized in
18 Chapter 15, and those are referred to in page 8-8, the
19 two figures that we referred to in Chapter 15.

20 We felt at the time that those figures
21 are not as easily comprehended as what will it cost to
22 do this or to do that or to do the other thing.

23 So, in addition to the net present value
24 allocated to a certain time period and levelized, we
25 are providing the cash flow associated with the various

1 components of the plan in dollars of 1989. It is
2 something that we felt people can relate to a little
3 easier than a levelized number and net present value
4 and a portion to ...

5 So, it was another perspective in costs.
6 We felt it is a little easier to grasp than most of the
7 other numbers we have.

8 The figures that follow in the various
9 pages that follow, starting on page 8-11, you see the
10 annual expenditures on the various components. As you
11 leaf through, various components will show you what the
12 annual expenditures are.

13 Q. I am trying to take that number \$10.3
14 billion and determine from that approximately how much
15 of it at that time was earmarked for demand management
16 solely, nothing to do with NUGS.

17 A. I don't know that for sure what the
18 distinction will be, but I would suspect that the
19 majority will be, off the top of my head, maybe three
20 quarters of the number or so would be demand management
21 and the small amount would be for load displacement
22 NUGS.

23 Q. Now, we have heard testimony and
24 reviewed exhibits that demand management expenditures
25 are going to increase now. There has been some

1 additional revenues found for demand management.

2 How do those additional revenues impact
3 on the numbers shown on page 8-9 of Exhibit 6?

4 A. The numbers on page 8-9 are intended
5 to capture the total cost of demand management by both
6 Ontario Hydro and the customer. This is a cost of
7 increasing the efficiency of electricity use. As we
8 spoke several times, the perspective is regardless of
9 who will pay the dollars.

10 Now, some of the additional money - and I
11 will leave that to Mr. Wilson and perhaps some of the
12 program related aspects - is to increase Hydro's
13 participation, but that is really who pays for it
14 rather than whether the money would have been spent
15 anyway or not.

16 Now, those figures here are simplified
17 dollars per kilowatt. We say a kilowatt typically will
18 cost this much and the administration will typically
19 cost this much and the customer participation. They
20 are really an order of magnitude to show the extent of
21 expenditures over the next twenty five years and where
22 are they placed in terms of supply and demand and NUGS
23 and so on. They are not of the same rigor and quality
24 that a business plan, for example, would have.

25 Q. I understand. Mr. Wilson, maybe you

1 can help me with this point. The Figure 60.5, the
2 total on page 8-9 of Exhibit 6, will that number change
3 as a result of Hydro's stated intention now to spend up
4 to \$6 billion on demand management, or is the total the
5 same and we are just rearranging numbers within that
6 chart?

7 MR. WILSON: A. I would expect the
8 numbers to change. Now, clearly, there are some
9 increases for demand management and there must be, in
10 the rebalance plan that we will see later this year,
11 some reductions in the other categories.

12 Q. And do you have any estimate of how
13 much money will be spent now just on demand management?
14 If you were to factor out load displacement NUGS, just
15 demand management, do you have any idea how much that
16 will be?

17 A. No, I am sorry, I don't.

18 Q. And now dealing with the question
19 raised in Interrogatory 4.12.49A, we asked for a
20 breakout of demand management expenditures for the year
21 1991 through the life of the plan.

22 Are those numbers available now or do we
23 have to wait for the new balanced plan later on in this
24 hearing?

25 A. The numbers in Interrogatory 4.12.49

1 were the best ones that were available in June, and I
2 don't think we have a new set of numbers at the moment.

3 Q. Now, do you expect a new set of
4 numbers?

5 A. In a normal course of events, we
6 probably won't take the detailed year-by-year numbers
7 beyond the year 2001 or the 2000 which is a corporate
8 business planning horizon.

9 Q. So, even if there are new numbers
10 generated, they will be for the approximate ten year
11 period set out in 4.12.49?

12 A. I think that is where our priority
13 would be over the next month or so.

14 Q. I will ask it a different way: Why
15 can't you identify demand management expenditures over
16 the twenty five year life of the plan as you have done
17 with supply expenditures?

18 A. I don't think there is any reason why
19 we couldn't do it.

20 Q. Why is it that you don't do it?

21 A. Generally speaking, it is not helpful
22 to our planning decisions.

23 Q. Maybe you can just help me understand
24 that. If you track supply costs for twenty five years,
25 why wouldn't you want to do that for demand

1 expenditures?

2 A. I am moving back into Mr. Shalaby's
3 territory here.

4 MR. SHALABY: A. I think the twenty five
5 year tracking is done both for demand and supply and
6 for NUGS in page 8-9. The question that you are
7 shifted to now is whether the business plan looks that
8 far and I think Mr. Wilson's evidence is saying that
9 the business plan doesn't go beyond the year 2000.

10 Q. So --

11 A. The corporate forecast generally
12 focus on the next several years with more precision
13 than the longer term.

14 Q. I will tell you what my concern is,
15 Mr. Shalaby, and tell me if the evidence exists. On
16 page 61 of Tab 1, the CAC asked for, in point No. 2,
17 demand side management expenditures in constant dollars
18 for each year from 1991 to 2014 inclusive.

19 If you could turn to page 62, you will
20 see that we didn't get that answer; we got a different
21 answer. It took us just to the year 2000.

22 Is there any reason why the CAC's
23 question could not have been answered through to 2014?

24 A. The business plan doesn't extend
25 beyond the numbers that you saw in the interrogatory

1 response. That is Mr. Wilson's evidence.

2 The numbers that I indicated to you today
3 on page 8-9 of Exhibit 6 are estimates made in 1989
4 based on the total customer cost, not Hydro
5 expenditure.

6 If your question was Hydro expenditure,
7 this is both customers and Hydro, and it really is a
8 rough estimate of what the cost of demand management
9 portion of the plan would be.

10 Q. Now, if we are just looking for
11 Hydro's expenditures, only Hydro's expenditures, for
12 the twenty five year planning horizon for demand
13 management only, excluding load displacement NUGS, is
14 that information available?

15 A. No, not readily, not in the documents
16 you have and I don't even know whether it is
17 extractable from the files that we have or the computer
18 runs that we have.

19 Q. Just bear with me for a minute.
20 Thank you. I would like to move on.

21 Mr. Harper, I would just like to finish
22 off with inverted rates. I am just looking for an
23 interrogatory. Now, at the break, Mr. Harper, we were
24 talking about inverted rates and what Hydro has done
25 with respect to bill impacts, that is, and whether they

1 have done anything similar to Toronto Hydro.

2 I would now like to just go back to the
3 issue of studies and ask you: Do you plan to do a
4 thorough study of the cost and benefits of inverted
5 residential rates before you decide whether or not to
6 implement a straight line energy rate with a service
7 charge or a straight line energy rate?

8 MR. HARPER: A. At this time, it was not
9 one of the alternatives we were considering, no.

10 Q. Could you briefly describe what the
11 reason is, why it is not an alternative, what the
12 reason for that decision is?

13 A. I think we talked about that briefly
14 before lunch in the sense of what were the various
15 objectives you could try to achieve with inverted
16 rates. And in our mind, I guess the main focus would
17 be the view of whether or not it would track costs or
18 encourage conservation.

19 I think with respect to encouraging
20 conservation, the material we have seen either in the
21 context of the Toronto Hydro study or other studies
22 that have been done, it is just as I was talking with
23 Mrs. Mackesy, the jury is still out in terms of whether
24 or not they encourage conservation. From the point of
25 view of tracking costs, again, they do not seem to do

1 that very well either.

2 I think clear evidence of this concern
3 about conservation is reflected in the final
4 conclusions of the Toronto Hydro study itself in which
5 they comment that for half of Toronto Hydro's
6 customers, the incentive to conserve caused by the
7 rate, and that would be an inverted rate, would be less
8 than it is now. I think that was one of the their
9 concerns about the rate and continues to be one of ours
10 as well.

11 Q. My concern with that answer, Mr.
12 Harper, is this: If the jury is still out, why don't
13 you do a study to determine if, in fact, your gut
14 reaction or your assumptions are correct?

15 A. What type of study would you be
16 talking about there?

17 Q. Well, a study to determine between
18 three alternatives; that is, a flat energy rate, a flat
19 energy rate with a service charge and a type of
20 inverted block rate, which is the optimal design
21 Toronto rate structure to encourage strategic
22 conservation, which, as I understand it, is Ontario
23 Hydro's primary goal.

24 A. I think we have had a fair amount of
25 discussion around primary goal. If we think about just

1 the general idea of doing the study, I guess our view
2 is that the data does not exist right now to do such a
3 study.

4 [2:50 p.m.]

5 Q. I would like you to turn to page 141
6 of Tab No. 1, Mr. Harper, of Exhibit 298, and this a
7 document that was given in answer to Interrogatory
8 4.29.15. This was an interrogatory from Florence
9 Mackesy.

10 We should give this interrogatory number
11 a ...

12 A. I think Mrs. Mackesy actually
13 referred to this interrogatory during her
14 cross-examination, so it probably already has an
15 Exhibit No.

16 THE REGISTRAR: 261.78.

17 THE CHAIRMAN: No, wait a minute. I
18 think it is been referred to. What page again, 141?

19 MR. ROSENBERG: Mr. Chairman, if you
20 start at 139, at Tab 1, this is Interrogatory 4.29.15.
21 And then I am going to be referring to page 141.

22 THE CHAIRMAN: 4.29.15. Was that
23 referred to in Mrs. Mackesy's examination?

24 MS. FRASER: Yes, as Exhibit 261.13.

25 THE CHAIRMAN: 13?

1 MS. FRASER: It was referred to quite a
2 while ago.

3 THE CHAIRMAN: You're right. You're
4 right. It's already been marked.

5 Thank you, Ms. Fraser.

6 MR. ROSENBERG: Q. Now, Mr. Harper, I am
7 looking at the first paragraph, sentence section, in
8 particular, reading now on page 141 which is page 9 of
9 the subject document:

10 In particular, the only promising
11 aspect of inverted rates was the fact
12 that they encouraged conservation by
13 providing low rates for basic needs of
14 electricity and higher rates for greater
15 and less fundamental uses.

16 Now, do you agree with that conclusion?

17 MR. HARPER: A. I guess basically I have
18 been saying all along I don't know whether it's true or
19 not.

20 I think it is important to remember the
21 ECAP study which this was referring to was done in the
22 very early 80s. Most of the inverted rates that are
23 actually in place as noted in the Toronto Hydro report
24 came into place during the late -- ECAPS, for example,
25 early 1970s. Most of the inverted rates that came into

1 place came into place in the late 1970s, early 1980s
2 primarily in response to the energy crisis that was
3 perceived at that point in time.

4 So, I think this comment probably
5 prefaced or became before the implementation of most of
6 the inverted rates we have in place right now. And it
7 was probably in a sense of the comment about the
8 promising aspect of those rates, and as I have said,
9 really to date, any of the utilities that have been
10 questioned either through the Toronto Hydro report or
11 the surveys that we have done ourselves, there isn't
12 any sort of hard analysis around suggesting whether
13 they do or they don't.

14 Q. My concern is, Mr. Harper, if you
15 don't know whether this statement is in fact true, why
16 doesn't Hydro undertake a study?

17 THE CHAIRMAN: I think he has answered
18 that several times.

19 MR. ROSENBERG: I will move on then to
20 the last part of our cross-examination which deals with
21 an all-price, all-demand case.

22 Q. I would like you, Mr. Wilson, to turn
23 to page 5 of Tab 1. Tab 1 page 5 is interrogatory
24 1.14.67.

25 THE CHAIRMAN: We should get a new

1 number.

2 THE REGISTRAR: 261.78, Mr. Chairman.

3 ---EXHIBIT NO. 261.78: Interrogatory No. 1.14.67:

4 MR. ROSENBERG: Q. And attached to this
5 interrogatory is a letter, this is at page 7 of Tab 1,
6 it says, Price Oriented Demand Management, and it is
7 dated 8th of January, 1986, and it's a letter from Mr.
8 Rothman to Mr. Agrell.

9 And in particular, Mr. Wilson, or any
10 other of the member of the panel who should answer
11 this, the second paragraph says:

12 The analysis indicates that
13 electricity prices would have to increase
14 by an average of 5.6 per cent per year
15 from 1990 to 2005, relative to the base
16 case in the current long range financial
17 projections. By 2005 electricity prices
18 would have to be about a 140 per cent
19 higher than shown in the LRFP.

20 Now, Mr. Wilson, or any other member of
21 the panel, would you agree with this statement that in
22 order to have all-price case you would need
23 approximately a 5.6 per cent per year increase from
24 1990 to the year 2005?

25 MR. BURKE: A. I think I am the closest

1 person to this work.

2 That was, at the time, our estimate. It
3 is important to realize what the base case was at that
4 time for prices. But I think the statement speaks for
5 itself for what we assumed at the time.

6 Q. And what do you assume now will be
7 required, Mr. Burke, 5 per cent per year increase or
8 something less than that or something more than that?

9 A. Well, it's difficult for me to say
10 right now because what we are talking about here is
11 something that would essentially rebalance demand and
12 supply using only price as the mechanism for
13 rebalancing. If I knew exactly how many megawatts one
14 had to cope with, that is what in fact the base case of
15 supply was and how all the NUGs and demand management
16 and so on...

17 Essentially, we haven't worked the number
18 out lately, is the bottom line.

19 We have given various responses which
20 indicate the price elasticity that we have and the time
21 profile that it takes to take effect, and I guess the
22 issue is, what is the demand/supply gap in 2005 and the
23 rate increase that's required to narrow it. I haven't
24 done that calculation explicitly lately, but I would
25 imagine it's less than the number here.

1 Q. Okay. Just for the record, Mr.

2 Burke, what was Ontario Hydro's nominal rate increase
3 this year and the real rate increase?

4 A. Well, the nominal, do you mean for
5 1991?

6 Q. The one that was just announced in
7 the newspapers.

8 A. 11.8 nominal, and I believe inflation
9 for next year is assumed around 5 or 6 per cent. I
10 would have to check exact number.

11 Q. So, in fact the real price increase
12 would have been somewhere between 5 and 6 per cent this
13 year?

14 A. Yes.

15 Q. Now, Mr. Burke, has Ontario Hydro
16 done any analysis to determine whether an all-price
17 case or all-price option could out-perform Plan 15 in
18 terms of GDP and employment under your most likely load
19 forecast?

20 A. Well, I think the only study I am
21 aware of, and I think I would want to be able to check
22 that, but the only studies that I am aware of the
23 plans which would include a price case are the ones
24 that you have filed under Tab 18, is in the study you
25 have filed under Tab 18, which is an exhibit of this

1 hearing. I think the exhibit is 51 but I am not sure.

2 Q. It's my understanding in reviewing
3 that, and please correct me if I am wrong, that that
4 does not provide all-price option relative to Plan 15.
5 Would you like to turn to it maybe we can --

6 A. It gives an all-price option relative
7 to some called Plan B.

8 Q. Right. Not Plan 15.

9 A. Yes. I am not sure how different
10 Plan B is from Plan 15. If it is different than you
11 are correct.

12 Q. I would like to ask you a second
13 question, has Hydro done any analysis to determine
14 whether an all-demand option, that's incentive driven
15 conservation and price increases could out-perform Plan
16 15 in terms of GDP and employment under your most
17 likely load forecast.

18 MR. SHALABY: A. I don't think we
19 evaluated those plans.

20 The progression of studies that the
21 planning exercise went through was in the period '86 to
22 '88. We looked at the two types of plans you are
23 talking about, the old price and the old demand
24 incentives plus price, and we decided at that time that
25 these plans are not preferred to a mix demand and

1 supply case.

2 So, at the end that planning exercise, we
3 concluded that a mix of demand and supply options is
4 the preferred way to go, and when the Demand/Supply
5 Plan was put together it was based on that kind of
6 conclusion.

7 So, we didn't go and revisit all of the
8 different options of putting a Demand/Supply Plan. We
9 built on the conclusions that we reached after a two
10 year study at that time.

11 Q. Was there any reason, Mr. Shalaby,
12 given at the time to exclude an all-price and
13 all-demand plan based on or arising from the
14 Environmental Assessment Act?

15 MR. B. CAMPBELL: I'm sorry. Just a
16 minute, what is arising from the Environmental
17 Assessments Act?

18 MR. ROSENBERG: I am asking, Mr.
19 Campbell, Mr. Shalaby whether at the time the
20 discussion took place about whether to include an
21 all-price and all-demand option in the DSP, whether any
22 rationale was be given arising from or as a result of
23 the Environmental Assessment Act.

24 MR. B. CAMPBELL: Well, Mr. Chairman,
25 that clearly is a matter of whether some legal

1 conclusion was reached, and in my submission, the
2 witnesses are not qualified to speak to that, and my
3 friend is free to explore whatever facts he wishes that
4 are relevant to the question of what studies were done
5 and when the efficacy or otherwise of those with
6 respect to those of meeting the requirements of the Act
7 is a matter, in my submission, for argument, and not a
8 matter for the witnesses.

9 MR. ROSENBERG: Mr. Chairman, I agree
10 with Mr. Campbell's submission on the matter of
11 argument, however, I think I am entitled, I submit that
12 I am entitled to ask the witness whether or not the
13 Environmental Assessment Act was put forward at the
14 time as a reason for excluding this, whether it's
15 appropriate or not is a matter for argument. It's a
16 matter of fact whether or not Environmental Assessment
17 Act was put forward as a reason to exclude --

18 THE CHAIRMAN: I think the question is
19 too general. If you can be more specific as to what
20 kind of factors may have sunk the all-price/all-demand
21 plan, then you might ask him about that. But I don't
22 think talking about it in broad general terms of the
23 Environmental Assessment Act is too broad a way to
24 frame the question.

25 MR. ROSENBERG: Q. Mr. Shalaby, to use

1 the Chairman's words, the all-price and all-demand case
2 did not end up in the Demand/Supply Plan. Could you
3 please identify what the criteria were for excluding it
4 at the time the decision was made?

5 MR. SHALABY: A. Primarily, the negative
6 impact on the economy of large price increases. And
7 secondly, as in the memo from Mr. Rothman and elsewhere
8 in the documentation of those cases, we were advised by
9 those who know the impact of prices and so on, that we
10 need to understand impact of prices a lot more before
11 it becomes a primary tool for meeting demand into the
12 future.

13 We have no experience of choking off
14 demand completely by that one instrument. We haven't
15 had that experience. To my knowledge, I don't think
16 anybody has that kind of experience.

17 So while we had some theoretical models
18 and some equations, we need to understand that method a
19 lot more, and the confidence in it, in doing the job
20 wasn't there.

21 So those two factors, understanding it
22 and the negative impact on the economy of doubling the
23 prices or tripling the prices were the factors, the
24 primary factors we are rejecting.

25 Q. What about the all-demand case, does

1 the same criteria come to fore when you talk about the
2 all-demand cases, the all-price cases, the reasons for
3 excluding it?

4 A. The all-demand case had incentives
5 and then price induced reductions as well, and it was
6 found that the other plans performed better in terms of
7 all the criteria that we measured at the time.

8 Again, particularly under upper load
9 forecast, the amount of reduction that we had to call
10 on to come from price increases was quite large. And
11 as I said, the impact was negative and the confidence
12 was low.

13 Q. Now, to the best of your
14 recollection, Mr. Shalaby, was there any discussion at
15 that time about the Environmental Assessment Act and
16 whether or not it provided any rationale for excluding
17 all-price and all-demand case from --

18 THE CHAIRMAN: That's putting the same
19 question the same way as before. So, please, if you
20 want to talk about particular features our factors of
21 the legislation that you want to draw to their
22 attention, but to just speak in terms of the Act in
23 broad general terms I don't think is helpful.

24 MR. ROSENBERG: Mr. Chairman, if you will
25 just give me one minute, those may be all my questions.

1 THE CHAIRMAN: I am not cutting you off
2 from asking in this line, but I don't think you should
3 do it in that particular way.

4 MR. ROSENBERG: Understood.
5 ---Off the record discussion.

6 MR. ROSENBERG: Those are all my
7 questions. Thank you.

8 THE CHAIRMAN: Thank you, Mr. Rosenberg.
9 [3:10 p.m.]

10 MR. GRENVILLE-WOOD: Thank you, Mr.
11 Chairman. I am sorry to keep you waiting for a couple
12 of minutes.

13 Mr. Chairman, we took your request
14 seriously on Thursday and examined carefully whether we
15 felt it was necessary to cross-examine on this
16 document. And after review of it, we came to the
17 conclusion that some of the information contained
18 therein should not be left on the record without
19 further questioning. So as you can see, we are here to
20 pursue that matter further.

21 FURTHER CROSS-EXAMINATION BY MR. GRENVILLE-WOOD:

22 Q. I don't know who I address this
23 question to, but let me ask it directly to a member
24 that feels qualified to answer.

25 Do you know, does anybody know who was

1 the author of this briefing memorandum?

2 MR. SHALABY: A. Yes, I do.

3 Q. Can you please tell me that
4 information?

5 A. Yes. It is a member in our
6 department, a student that was spending a
7 year-and-a-half with us. His name is Norman Askew.

8 Q. Norman?

9 A. Askew.

10 Q. A-S-K-E-W?

11 A. Yes.

12 Q. And he is a student?

13 A. Yes.

14 Q. Do you know at what level he is in
15 terms of his studies?

16 A. Third year, I think.

17 Q. Any particular professional course he
18 is following and that he is in third year of?

19 A. He is at Western, University of
20 Western Ontario, Engineering.

21 Q. Was this document reviewed by
22 anybody?

23 A. It was reviewed by me, yes.

24 Q. My understanding --

25 A. I am prepared to just put it in

1 context.

2 Q. Yes.

3 A. This was prepared as a briefing note
4 for me as the title of the document indicates, a
5 briefing memorandum. What I asked him to do is to
6 survey the literature and contact the manufacturers and
7 the industry, people knowledgeable in the industry, and
8 to prepare a briefing note for me to bring me up to
9 date of the state of solar water heaters so I could
10 share with the panel here and in our briefing material.
11 So, that was the purpose of the assignment and I
12 reviewed it.

13 Q. I would assume that this student, Mr.
14 Askew, had no particular expertise in solar technology?

15 A. You are right, yes, although he had a
16 lot of interest. He was required to do a project on
17 his return to university and he took interest in doing
18 a project on solar technology and I agreed to give him
19 projects that are useful for us as well as for his
20 academic interests as well.

21 Q. Yes. Now, Mr. Wilson indicated, I
22 think, in response to some questions last week that
23 there was no lack of expertise on solar technologies
24 within Hydro.

25 Would it not have been wise or prudent or

1 more useful perhaps for all concerned to have this
2 document reviewed by those persons within Hydro who
3 have the expertise in order to ensure that the
4 information presented reflected accurately the current
5 situation?

6 A. Those people participated in the
7 gathering of information. They were contracted at
8 different stages of the preparation of the document. I
9 have had the opportunity to discuss with them the
10 general conclusions and assumptions and I am satisfied
11 that the document is accurately portraying the status
12 of solar water heaters at this time in Ontario.

13 Q. And I am looking at the last page of
14 the document on page 12. It lists the references.

15 Could you please point to me where the
16 experts within Hydro are referenced here?

17 A. The references are intended to
18 provide publications and external contacts that we
19 made, that we relied on in presenting information,
20 presenting data.

21 The people within Hydro that had a chance
22 to review the product and the information within it and
23 the conclusions are not listed in references.

24 Q. I see. Do you know who those people
25 were?

1 A. I do, but given this is the last day
2 on this panel, I wonder whether this is a very
3 productive sort of use of -- does it really matter? I
4 don't know their names exactly, the last names, their
5 position. They are in research divisions. They are in
6 energy management and so on.

7 I will have to do some work to accumulate
8 exactly who was contacted at what time and referred to
9 what portion of the document.

10 Q. Well --

11 A. But the expertise in solar water
12 heaters was consulted within the company, yes.

13 Q. No. I guess the point is, I presume
14 that Hydro adopts this document as representative of
15 its position; is that a correct and fair statement?

16 MR. B. CAMPBELL: I think Mr. Shalaby has
17 made it quite clear that he believes the document
18 fairly represents, and that is his testimony on behalf
19 of Ontario Hydro; it fairly represents the status of
20 these matters.

21 MR. GRENVILLE-WOOD: That is fine.

22 Q. I am just looking again at this page
23 12, Mr. Shalaby. There is only, I think, a couple of
24 items in here that date from 1990 and one of them is
25 the SOL magazine article which is called Solar 101.

1 Now, have you seen that article yourself?

2 MR. SHALABY: A. Not this particular
3 article, no. The magazine looks like this
4 (indicating).

5 Q. Now, in that article, was it not
6 merely -- I mean, would you not agree with me that that
7 article was intended to give a very cursory
8 introductory, as it indicates from the title, Solar
9 101, an introductory, almost layman's presentation on
10 solar hot water heating?

11 A. I just indicated to you that I did
12 not review that particular article.

13 Q. I see.

14 A. I reviewed many other documents in
15 this list, but not this particular one.

16 Q. Presumably you won't be able to agree
17 with me that that article --

18 A. If I haven't seen it, I wouldn't be
19 able to agree on anything at all.

20 Q. No. That is fine.

21 Does anyone else know anything about it?
22 Presumably not.

23 MR. B. CAMPBELL: I think we would argue
24 that it comes from a relevant source and we assumed it
25 was accurate.

1 MR. GRENVILLE-WOOD: Q. It is accurate
2 except that it represents a very basic fundamental look
3 at the technology based on an introduction prepared in
4 1978 to the technology.

5 MR. SHALABY: A. But it may be
6 noteworthy that it is prepared by your client.

7 Q. No, I have no question about that.
8 The point is, there have been advances made. I mean,
9 if that is the only 1990 documentation, that is
10 interesting, to use one that is called Solar 101?

11 A. No. That is not the only one.
12 No, page 12 shows nine references.

13 Q. Yes.

14 A. And I think the references in total
15 helped us put together the information that we have in
16 that filing memorandum.

17 Q. Well, as I said, there are only two
18 others that date even from 1990 and one of them has to
19 do with efficient showerheads.

20 A. Yes. Well, one of the reasons that
21 there aren't many recent publications that we chose
22 here is that the Energy, Mines and Resources Canada
23 which ran the largest solar heater program that I am
24 familiar with, that program was terminated in the late
25 '80s. So, the fact that there isn't anything in the

1 '90s is not an indication of us not getting recent
2 information.

3 The peak of activities with the Energy,
4 Mines and Resources program was in the mid to late '80s
5 and we have their fact sheets on solar water heaters
6 and we have, in 1986, the Canadian Solar Energy Review,
7 a comprehensive review of the Energy, Mines and
8 Resources activity and solar water heaters that
9 extended for seven or eight years before that.

10 Q. Well, let me ask you a question that
11 maybe will arise out of what you have just said.

12 Are you aware of such things as selective
13 surfaces for absorbers?

14 A. Yes.

15 Q. And are they referred to in this
16 document?

17 A. Yes.

18 Q. Where?

19 A. Well, they are referred to in the
20 thermodynamics. You have a reference here if we are
21 looking at page 12 again, which is thermodynamics is a
22 distributor and manufacturer of solar water panels.
23 And we have their literature products, the products
24 that they distribute, and they have something called a
25 solar strip. And solar strip is painted with low

1 emissivity paints to absorb heat and to retain it, not
2 radiate it back. I presume that is what you are
3 talking about.

4 Q. Yes. But isn't it correct to say,
5 Mr. Shalaby, that that technology is not referred to
6 anywhere in the analysis of performance that is put
7 forward in this paper?

8 A. Well again, I would ask you to take
9 the comment. This was a briefing note for me. The
10 references to it are available to me. I am satisfied
11 that the information here is solid and I am convinced
12 that the analysis here is satisfactory.

13 Now, we turned it into an exhibit not
14 because we present it as an exhibit, because you wanted
15 to see what briefing note I am relying on. It wasn't
16 prepared as an exhibit. It wasn't prepared as a
17 comprehensive review. The very first lines of that
18 note says, "while not a comprehensive report". This
19 was not intended to be a comprehensive report, just a
20 snapshot update.

21 Q. But it is true, is it not, Mr.
22 Shalaby, that this at first report that Hydro has done
23 analyzing these things since 1983?

24 A. It is the first report that Hydro has
25 put together, yes, but it is not the first piece of

1 information relied on since 1983.

2 Q. No, I am not suggesting that.

3 Let me ask you another question with
4 respect to the technology: Are you aware of microflow
5 systems?

6 A. Yes, I am.

7 Q. And is that reflected in this report,
8 approximately having had a conversation with Mr.
9 McKenna?

10 A. Not conversation. We have their
11 product literature. We are aware of their products.
12 They evaluated extensively by Energy, Mines and
13 Resources in all their literature. We are aware of the
14 heat loss reductions that the microflow system
15 introduces and flexibility in connecting the collector
16 to the solar water tank, and so on.

17 Q. But am I not correct in suggesting to
18 you that the analysis put forward in this paper again
19 does not reflect that technology?

20 A. No, you are not correct.

21 Q. Okay. Well, show me where it does.

22 A. Well, the cost estimates of the
23 technology that we are relying on is a system that
24 would use that kind of technology.

25 Q. Show me where it makes reference to

1 that.

2 A. Well, it may not have said slow flow
3 or low flow. That may not be mentioned. I am not
4 going to pretend that it is, but the references that we
5 reviewed directly refer to that and we are aware of
6 that technology. I have seen a pipe with two pipes in
7 it and a cord. I know, I have seen it.

8 Q. You may have seen it, but the point
9 is, you are making an analysis here. You are making a
10 dollar and cents -- conclusions are being drawn in this
11 document. They are being presented to this Board as
12 reflecting the position of Ontario Hydro and yet, no
13 reference is made to this technology.

14 Now, it seems to me from looking at this
15 document, and correct me if I am wrong --

16 A. I reject that assumption. I am
17 saying that the assessment we made was based on
18 state-of-the-art solar water heaters; that include the
19 absorption materials and it is low flow. We have the
20 product literature. If you wish to file them as an
21 exhibit, if that satisfies you, I am pleased to do so.

22 Q. Excuse me, I don't want to interrupt
23 you, Mr. Shalaby, but I am looking at the document. I
24 am looking at the drawings you have presented. I am
25 looking on pages 2, 3, 4, I am looking at the analysis

1 presented on page 5 and 6. Nowhere does it make any
2 reference to these technologies I have just referred
3 to. It looks like it is referring to an analysis of a
4 nine year old technology.

5 MR. B. CAMPBELL: Well, with respect, Mr.
6 Chairman, hasn't Mr. Shalaby answered this question
7 already? He has pointed out that various contacts were
8 made. He has pointed out the kinds of products that
9 were considered by the author and he has been perfectly
10 frank about the fact that this is not pretended to be
11 an exhaustive listing. It has been prepared for a
12 briefing note, but all of these matters were
13 considered. With respect, I am not sure what else can
14 be said here.

15 MR. GRENVILLE-WOOD: I think enough has
16 been said on that point, thank you, Mr. Campbell.

17 Q. A question: Again, one of the
18 fundamental items in this study, and you will find it
19 on page 6, it talks about the life expectancy of this
20 technology.

21 Now, it talks about warranties and it
22 talks about an assumed life of a solar water heater is
23 twelve years.

24 Do you have any idea where that twelve
25 year life expectancy figure comes from?

1 MR. SHALABY: A. It comes from estimates
2 that the life of commercial domestic hot water heaters
3 is somewhere between 10 and 15 years.

4 Q. Based upon what?

5 A. The Energy, Mines and Resources'
6 estimates, the literature that is referenced.

7 Q. Can you point me to any particular
8 source which says twelve years is an appropriate life
9 expectancy?

10 A. I said ten to fifteen years is the
11 range I have seen in the literature and we chose twelve
12 years as a representative number.

13 Q. Now, would you not agree that the
14 hardware, if that is the right word to use, is
15 essentially copper or plastic piping?

16 A. The piping is copper and plastic.
17 There are pumps. There are tanks. There are coverings
18 to the piping, the casings that are metal or aluminum,
19 yes, so there are other components as well.

20 Q. Would you not agree that copper or
21 plastic piping has a life expectancy far greater than
22 even twenty years?

23 A. Well, I think the expert opinions
24 that we got and the actual experience in the field that
25 we relied on says that the entire system has a life

1 expectancy of that much.

2 There may be components that can last
3 longer. Some components would last shorter than that.
4 I do not have an estimate of component-by-component
5 life.

6 Q. But is it not a possible option to
7 examine in terms of putting forward these kinds of
8 analyses having certain components that last a long
9 time and having maintenance or servicing fill in for
10 components that either wear out or need serving? Is
11 that not a possibility in terms worthy of analysis?

12 A. It is a possibility, yes.

13 Q. And that wasn't done here?

14 A. It was not done in that detail, no.

15 Q. Now, you have indicated to me that
16 this report is only intended to be a general overview.

17 Can I just understand, is what you are
18 saying is that this was just merely a briefing note to
19 you?

20 A. Yes.

21 Q. It has no other value to Hydro other
22 than just briefing you for the purposes of testifying
23 at this hearing?

24 A. It has value. I shared that notice
25 or that note with my colleagues on this panel and with

1 others in Ontario Hydro interested in the subject, but
2 the primary purpose of it was to bring us up to speed
3 for this hearing, yes.

4 Q. Really, I mean, it is not the
5 document upon which you based your planning decisions
6 with respect to solar since it is just so recently
7 prepared?

8 A. Future planning decisions or past
9 ones or ...

10 Q. Well, we are here discussing your
11 plans. And this document couldn't affect those
12 decisions because it was done afterwards presumably.

13 A. This document, yes. It was not in
14 place at the time the Demand/Supply Plan was put
15 together.

16 Q. Now again, turning to page 6, I look
17 at it and I see a figure there which says, present
18 value savings, 1,160.

19 [3:30 p.m.]

20 I am just wondering where that figure
21 comes from. The figures that could be used to verify
22 it are not here. For example, such things as the
23 avoided incremental system cost, it's not in here, so
24 we don't know how we can recreate that figure to see if
25 it's correct.

1 A. Those values have been tabled in
2 Panel 3, Exhibits 84, 85, and 176, and now in 309. You
3 can create and recreate to your heart's content. There
4 are many of those products available and tabled with
5 this hearing.

6 Q. So, you are saying that I could
7 recreate using those exhibits, that dollar figure of
8 1,160?

9 A. Yes.

10 Q. All right. I am interested to note
11 that your figures here are based on a net present value
12 as opposed to cents per kilowatthour. What is the
13 correlation between those in terms of this analysis?

14 A. The way we evaluated the costs and
15 benefit is we evaluated the present value of the cost
16 and the present value of the benefit and compared the
17 two.

18 Q. Now, in order for us to again look at
19 those, you have used three present value of savings
20 figures, page 6 and then top of page 8 are the other
21 two. I was wondering if you could provide us with the
22 actual calculations that we used to derive these
23 figures? Do you know what they are, where they are
24 available?

25 A. I hate to disturb a student so close

1 to exam times, but I do not have the detail. I can
2 look for them, but I don't know if they will be
3 available or not. I have to --

4 Q. Can I have an undertaking to provide
5 us with those figures so that we can --

6 A. I will look for them and if they are
7 available I will provide them, yes.

8 They are fairly straightforward. It's a
9 stream of the energy savings and a stream of capacity
10 or power savings. They can be recreated quite easily.

11 THE CHAIRMAN: Do you really want this,
12 Mr. Grenville-Wood?

13 I think it is putting and imposition on
14 Hydro to go and try to dig these out. These are
15 calculable from the analysis, in ballpark terms from
16 the avoided cost analysis.

17 MR. GRENVILLE-WOOD: Well, I will consult
18 with my expert and see what he thinks.

19 ---Off the record discussion.

20 THE CHAIRMAN: Hydro rightly or wrongly
21 thinks this is uneconomic technology. If your client
22 thinks it is, then you present the evidence, I think is
23 the way this hearing ought to proceed.

24 MR. GRENVILLE-WOOD: Mr. Chairman, with
25 respect, it seems to me that Hydro has put forward a

1 document here.

2 THE CHAIRMAN: Hydro has not put forward
3 a document. This document was got out of Hydro from
4 your cross-examination. They provided it to you out of
5 courtesy and you have got it. Now, you can ask
6 questions about it but I don't think you should go any
7 further.

8 If you can show that the technology is
9 viable, then that's up to you for your evidence.

10 MR. GRENVILLE-WOOD: Mr. Chairman, again
11 with respect --

12 THE CHAIRMAN: Please go on.

13 MR. GRENVILLE-WOOD: I have every
14 intention of proceeding, Mr. Chairman.

15 I must say that I find it very difficult
16 to understand these figures without having some
17 understanding of where they come from and how they have
18 been arrived at. We know now who the source is of --

19 THE CHAIRMAN: You know how the figure
20 1,160 was arrived at because Mr. Shalaby has hold you.

21 MR. GRENVILLE-WOOD: That's correct.

22 THE CHAIRMAN: All right.

23 MR. GRENVILLE-WOOD: He also puts forward
24 two other figures, and they are clearly different. I
25 don't think it's a great imposition, with respect, Mr.

1 Chairman, to ask them to provide it, if the student did
2 the work, they must have the figures.

3 THE CHAIRMAN: What figure are you
4 talking about.

5 MR. GRENVILLE-WOOD: These are the three
6 figures that they put forward at alternative net
7 present value figures, one on page 6 and the other is
8 on page 8. Expected high NPV, expected low NPV, there
9 is 1,650 and one of 460, the very top.

10 MR. SHALABY: The page 7 explains the
11 assumptions for the high and the low. And to go over
12 the life for example, people gave us a range of 10 to
13 15, we said, what if it were 15. What it if worked not
14 to satisfy 55 per cent of the hot water use in the
15 house but 65 per cent. So, we went on one side of the
16 assumptions, longer life, better performance, and
17 calculated the net present value benefits that way, and
18 went on the other side, what if it lives shorter, what
19 if it doesn't perform as well.

20 And certainly many of the demonstrations
21 and the projects that we tested in the early 80s and
22 that the MNR tested in the mid-80s, some performed to
23 expectations, some did not.

24 So, it's reasonable to have look on
25 either side of meeting expectations. And we said in

1 page 7, it tells what you the other side is that can
2 tell you why the values are different on page 8.

3 MR. GRENVILLE-WOOD: Q. So, just to
4 understand it then. If in fact what you are saying is
5 that if we can calculate how and you arrived at the
6 \$1,160, then using the variables mentioned under the
7 sensitivity section on page 7 as variables in the
8 calculation, we can then arrive at these other two
9 figures?

10 MR. SHALABY: A. Yes. They are three
11 separate studies; different lives, 8 years, 12 years
12 and 15 years; different performance, 30 per cent, 55
13 per cent, 65 per cent, those are all the variables you
14 need to do the calculation.

15 Q. All right. That is very helpful.

16 Thank you, Mr. Chairman.

17 Now, there is one other thing that is
18 confusing about this report, Mr. Shalaby, and it has to
19 do with the fact that on page 6 it indicates that -- it
20 talks about Ontario Hydro's savings, and then on page 8
21 it says the results are indicative of a customer
22 perspective. Now, I am trying to understand from the
23 presentation in this report what exactly are we talking
24 about. Is it prospective from Hydro, which is one
25 thing, I think that's where we apply the TCC test, or

1 is it a value in the customers' hands?

2 A. The primary emphasis is on total
3 customer cost, what does it cost to heat water with a
4 solar panel versus some other method, electrical water
5 heating. That is the perspective that we take to
6 screen and evaluate things to start from.

7 Now, that statement, it says, if it
8 doesn't look cost-effective from a total customer cost,
9 we are expressing the opinion here that it probably
10 would not look effective from a customer perspective,
11 meaning the savings in a customer bill are likely not
12 large enough to justify the investment in a solar water
13 heater in most instances.

14 Q. Well, with respect, that's not what
15 exactly I understand from that statement on the summary
16 on page 8. These results are of indicative of a
17 customer's perspective. It seems to be referring back
18 to all the results that you have summarized here. It
19 doesn't seem to be just sort of an assumption based if
20 the TCC doesn't meet Hydro's perspective, then ipso
21 facto - excuse the pun - the customer won't benefit,
22 which is what I am understanding you to say.

23 A. The word "indicative" says -- the
24 question arose, should we do this from a customer
25 perspective, go and going spend some time analyzing how

1 the solar water heater would look from the customer
2 perspective. And my guidance to Mr. Askew who did this
3 study who did this study is no, we should not spend
4 time doing that. The results here are, give me what I
5 need to know and are indicative of what it might look
6 like from the customer perspective.

7 We don't have a customer perspective
8 assessment in this paper. We are just saying, from our
9 experience we would think if we did it will not look
10 attractive.

11 The word "indicative" means from what we
12 have done and what know of these products, we think if
13 we did a customer perspective it will not look
14 attractive.

15 Q. Again you are talking here about an
16 illustrative case and you are extrapolating a number of
17 places the illustrative case as it might relate to
18 large numbers of systems as it indicates here.

19 Now, I don't understand where you have
20 arrived at or where Mr. Askew has arrived at this
21 question of large numbers system. Did he take a figure
22 and multiply it? Is there a model that he used? What
23 kind of extrapolation basis did he use?

24 A. There are no specific models used or
25 extrapolations used.

1 I think the reference here is there are
2 other specific applications of solar water heaters.
3 For example, there is something called the seasonal
4 water heater where it operates only in the summer and
5 not year-around. There are water heaters that are used
6 to preheat water, not to bring it up to 55 or 60
7 degrees, but to a lower temperature and then you heat
8 it with gas or electricity.

9 There are many variations on the theme,
10 there are many arrangements of where the tanks are and
11 what the materials are. We just say that we have taken
12 one of the best systems that we are aware of at this
13 time available on the Canadian market, we evaluated it,
14 but there is a large number of applications that are
15 different, depending on the circumstance and depending
16 on the application, and we feel that is illustrative
17 enough for us in a general case. That's what that
18 means.

19 Q. I'm sorry. Your answer is
20 interesting, I am not sure it answers the question I
21 asked.

22 Look at the last paragraph of the summary
23 on page 8, it says:

24 The conclusion of this report is that
25 solar water heaters if installed in large

1 numbers could significantly reduce
2 Ontario Hydro's summer demand. However,
3 the cost of such reduction in electricity
4 consumption is high and the illustrative
5 case is uneconomic.

6 Now, that is a broad conclusion. I am
7 just wondering, what are the large numbers used, what
8 kind of figures did he use? Is there a model he
9 applied or had he just taken a figure and multiplied by
10 50,000 or 100,000? What sort of factors were taken
11 into account? Were any, for example, factors taken
12 into account for increased demand, lowering the initial
13 price? Those kind of factors, did that come into play
14 in this analysis at all?

15 A. Not in a detailed way, no.

16 What is meant here is that one solar
17 water heater would reduce demand by 2,800 or 2,900
18 kilowatthours. If we had a million of them, it will
19 have a much larger and measurable noticeable impact on
20 the electricity.

21 Q. So it's one million times?

22 A. One million, 100,000, or 10,000.

23 Q. It is just a straight arithmetic
24 multiplication is what was done?

25 A. The more you have, the larger the

1 impact on summer electricity usage, and winter
2 electricity usage.

3 I think that's the statement here. Is
4 that solar water heaters, if introduced in large
5 number, can have an impact on electricity demand in
6 Ontario. I think that's what that's saying.

7 And then it goes on to say the costs of
8 doing so is higher than the alternative fuel costs that
9 it displaces.

10 Q. The point I am asking you, Mr.
11 Shalaby, is this, all that was done from what I am
12 understanding you to say is that you took the savings,
13 if you want to call it that--

14 A. Yes.

15 Q. --of 2,890, multiplied it by a larger
16 number, and said, well, if the cost of that is still
17 the same, then the savings are only 2,890 times that at
18 this cost, therefore it's uneconomic. There was no
19 other factor put in which would have changed the cost
20 figure.

21 A. Yes, there is, and you pointed to it
22 yourself. On page 8 you saw a high case and a low
23 case. You can argue that the scenario in which the
24 solar water heater would be \$2,000 and not \$2,500 is a
25 case where you have large market, large volume sales.

1 The price might come down under that kind of
2 circumstance.

3 But we didn't do a marketing assessment
4 of what happens if you sell that many units per year or
5 that many units per year. We just said if the cost
6 comes down to \$2,000 and that can come down either
7 because of technology improvement or because of mass
8 commercialization, or many other reasons.

9 Q. Now, you will recall that Ms. Fraser,
10 in response to my questions last week, indicated that
11 she spoke at the SESCOI conference here in Toronto. I
12 am wondering if, Ms. Fraser, you were aware of a paper
13 presented at that conference called "The Potential for
14 Utility Peak Load Reduction with the Use of Solar
15 Domestic Hot Water Heating", or Hot Water Systems.

16 MS. FRASER: A. I believe a student from
17 Queen's University presented that paper in the same
18 session I presented mine in.

19 Q. Has that paper being fed into your
20 system? Was it given to Mr. Askew, for example, to
21 prepare his...

22 A. I don't know if it was given to Mr.
23 Askew.

24 MR. SHALABY: A. Those proceedings were
25 published later than the time we prepared this, or if

1 they were at the same time they were not part of this.

2 MS. FRASER: A. I didn't give them to
3 him until very recently.

4 Q. I'm sorry?

5 A. I didn't lend them to Mr. Shalaby
6 until very recently.

7 Q. So you agree that it wasn't made part
8 of the report, although you had it in your position?

9 A. Correct.

10 Q. In August of '91, last month, I think
11 for at least for one more day it will be last month,
12 the Department of Energy, Mines and Resources to which
13 you have made reference, Mr. Shalaby, issued a further
14 report, has released a further analysis of that report
15 that I just referred to, it has the same title.

16 MR. SHALABY: A. Here it is.

17 Q. Well done. Did that recently come
18 into your position?

19 A. Yes. It was only issued in August.

20 Q. Can you tell me when you got it?

21 A. In August.

22 Q. And did any thought come into your
23 mind that it would be worthwhile having Mr. Askew or
24 someone else look at that document in an attempt to
25 update your June '91 report?

1 A. We would review it and if we think
2 further assessment or update of our conclusions is
3 warranted, we will do so.

4 Q. Well, you might look at that report
5 and you might find in it, Mr. Shalaby, that at least
6 the Department of Energy, Mines and Resources in
7 reviewing the studies latest state-of-the-art might
8 draw some difference conclusions, whereas your report
9 indicates that there is a .23 kilowatt saving, the
10 Department of Energy, Mines and Resources looks at
11 something almost four times that amount, .94.

12 A. Yes, I am aware of that. The reason
13 for that is they are looking at really a dual tank or a
14 very large water storage, a system by which you do not
15 heat water during the peak hours, and it really is a
16 hybrid solar water heating plus a load shifting where
17 your have two large tanks and you don't heat water
18 during the peak hours. We have looked at that option,
19 a large storage tank, side by side with the existing
20 water tank, and there are considerable savings to be
21 achieved from that whether it's solar or non-solar.

22 If you heat water at night and use it all
23 day around, you have benefits arising from that. That
24 is the reason the rating of reductions is higher,
25 because they assume that the electric water heater will

1 be entirely disconnected during peak hours. It's not
2 the same thing.

3 All I am saying is that it is a very
4 different system they evaluated from the one that we
5 are evaluating here. It's something that takes water
6 heating off the peak hours completely. That's my
7 understanding of the rating of that.

8 MR. MacLELLAN: A. Those are similar
9 results to if we put two tanks, as Mr. Shalaby is
10 saying, dual tanks and just did 16 hour load control,
11 same kinds of savings to be achieved.

12 Q. Are you also saying in the analysis
13 of energy, annual energy savings, the figure goes up to
14 4,590 kilowatthours from the 2,890 we were just
15 referring to? It also comes out in the EMR report?

16 A. It may well. I have got to look at
17 details. But the most obviously thing is, that is a
18 scheme that takes the water heater off the peak hours
19 completely rather than supplement it from time to time
20 [3:49 p.m.]

21 Q. The third interesting point about
22 that report from Energy, Mines and Resources is that
23 the present value that they assign to that system is
24 \$2,475 as opposed to the 1160 that you have got; are
25 you aware of that?

1 A. Well, if it is doing a different job,
2 it may well save -- of course, if saving 6 kilowatts
3 rather than .24 kilowatts, it would have a higher
4 value, there is no doubt about it.

5 Q. And you would agree, well, I
6 presume - I don't know how closely you have read this
7 report - you would agree that the benefits that are
8 shown have no detrimental impact on Hydro.

9 A. What is meant by that?

10 Q. We are talking about your load
11 factor; there is no detrimental impact on your load
12 factor and there is no detrimental impact on the
13 customers' availability of hot water.

14 A. Well, I think I better give it a
15 closer reading before assessing that.

16 Q. Is anyone aware of an application for
17 an installation of a 50 to 100 solar water heating
18 system before the Canadian Electrical Association?

19 A. Before or in conjunction with, or is
20 that what you are --

21 Q. It was presented to the Canadian
22 Electrical Association.

23 A. I am not aware of that particular --

24 THE CHAIRMAN: I will permit this
25 question to be asked, but it is now going beyond the

1 terms of reference of the re-examination, I take it.

2 It has got nothing to do with this particular paper
3 that you were being cross-examined on.

4 I will let you go ahead with that
5 question, but I just want you to understand, it is
6 beyond the scope of what you are coming back to do.

7 MR. GRENVILLE-WOOD: Q. I am sorry,
8 nobody is aware of this? So nobody was aware that
9 Hydro rejected that application?

10 MR. SHALABY: A. If you give us a
11 year -- the Canadian Electrical Association meets five
12 or six times during the year, different sections and
13 subsections and so on. It would help us if you would
14 give us a little more --

15 Q. It was this past summer, in June of
16 1991, I think it was.

17 A. No, I am not aware of that, no. June
18 of 1991 I was glued to this chair for the duration.

19 Q. Again, to come back to the report
20 that you filed, have you seen the Energy, Mines and
21 Resources' report entitled "Active Solar Heating in
22 Canada to the Year 2010"? That is the blue one you
23 have got there. That is it. I saw you reading it
24 earlier.

25 A. That is two out of two. I think we

1 now deserve to go home early. What do you think?

2 Q. Well, we will do our best to
3 accommodate you, Mr. Shalaby.

4 When did you get that one?

5 A. That was also handed out at the
6 August workshop and the summary of it was in the Solar
7 Energy Society proceedings. There was a paper
8 presented that summarized the conclusions of that.

9 Q. Now, you will be aware, of course,
10 that this also deals with a number of technologies in
11 it. One of the issues I wanted to raise with you is
12 the question of increased demand lowering the price.

13 A. Yes, that issue is discussed there.

14 Q. Now, do you recall what price
15 reduction are they looking towards in that report?

16 A. Yes, I do.

17 Q. Could you tell us what that number
18 is?

19 A. They are looking for a reduction to
20 \$1500 for installation.

21 Q. Does that give an impact on the net
22 present value?

23 A. Yes, it does.

24 Q. A question that arises out of this
25 now: You have indicated and so has Mr. Burke and

1 others at the table that Hydro has applied a total
2 customer cost test to these technologies.

3 Now, are you telling us that this is the
4 document that applies the total customer cost test?

5 A. Yes.

6 Q. But this document was done in June of
7 '91.

8 A. Yes.

9 Q. Did you not tell us that the total
10 customer cost test was being failed earlier than June
11 of 1991?

12 A. Well, this document illustrates in
13 detail the detailed calculation. It fails the test by
14 a two to one margin and we had estimates of that. We
15 had experience from -- the Energy, Mines and Resources'
16 calculations show that. We didn't need to do our own
17 assessment to come to that conclusion in the detail
18 that we did in June of 1991.

19 I think that is a value that we get out
20 of demonstration programs by Energy, Mines and
21 Resources and by papers done by your consultant's firm,
22 Enermodal; for example, they do studies and they do
23 cost calculations that we rely on. We take those and
24 we use them. We don't have to reinvent the wheel if
25 somebody else has given us that kind of result.

1 Q. With respect, Mr. Shalaby, you don't
2 have to reinvent the wheel, but since 1983, you have
3 indicated to me this is the first document that you
4 have prepared looking at the cost of this technology.

5 A. Yes.

6 Q. And are you saying that you
7 intuitively decided that technologies fail the TCC?

8 A. Not intuitively. I have demonstrated
9 to you that we are aware of the literature. We are
10 aware of demonstration projects. We are aware of
11 applications elsewhere in other utilities. We read
12 these reports carefully and we take the benefit of
13 other people's work and apply it in our own judgment.

14 The fact that we didn't prepare a report
15 doesn't mean that we did not follow the scene or did
16 not follow the economics or did not follow the
17 demonstration programs that are instituted exactly for
18 that purpose to demonstrate the performance and the
19 costs and the reliability of these products. We keep a
20 good eye on these things and we learn from those
21 projects.

22 Q. Well, I put it to you, Mr. Shalaby,
23 that we have just discussed here this afternoon a
24 couple of facts: a) you haven't looked at the latest
25 technology. At least there is no reference to it in

1 here and there is no reference to --

2 A. I reject that. I reject that
3 completely and I have shown you that we are looking at
4 the latest literature. We are looking at the latest
5 products. We are looking at the latest conference
6 proceedings, the very latest workshop by EMR. I don't
7 know how you can draw that conclusion.

8 Q. Well, I am drawing a conclusion from
9 what Ms. Fraser indicated earlier; that the report from
10 the workshop in May was not passed on to you and was
11 not part of this document.

12 A. It doesn't mean we are not looking
13 at.

14 Q. No, but --

15 A. Life goes on. After you prepare a
16 document, something else comes up.

17 Q. But this document doesn't use those
18 technologies. If they had, we would have a
19 replication, wouldn't we?

20 MR. B. CAMPBELL: Just a minute. Mr.
21 Chairman, my friend can argue this as much as he likes
22 at the end of case, but it is quite clear and I would
23 suggest it is objectionable for my friend to continue
24 to suggest to Mr. Shalaby that he has said something
25 which is exactly the opposite of what he said.

1 What he has said is that he discussed
2 this matter with the person who prepared the paper and
3 that in the preparing of it, they were exactly aware of
4 these technologies. Now, that is Mr. Shalaby's
5 evidence.

6 I haven't read the document in sufficient
7 detail, but to the extent that he has got answers
8 agreeing from Mr. Shalaby, he is open to argue that
9 that very fact isn't spelled out in the paper, a matter
10 which I will submit to you which is completely and
11 totally irrelevant given the evidence that Mr. Shalaby
12 has given.

13 The fact of the matter is that the
14 testimony that my friend has received is that those
15 matters were considered. And with respect, Mr.
16 Chairman, it is my submission that he ought not to
17 continue to misstate the evidence that has been
18 provided.

19 MR. GRENVILLE-WOOD: I am putting a
20 series of points to the witness, Mr. Chairman, and I
21 haven't finished putting that point. And the point is
22 quite simply this: If those technologies had been
23 taken into account --

24 THE CHAIRMAN: They were taken into
25 account. That is the evidence. Now, you may think

1 they weren't and you may think they weren't done
2 adequately, but Mr. Shalaby's evidence is that they
3 were taken into account.

4 MR. GRENVILLE-WOOD: Let me just finish
5 the question and we will see what we get as a result.

6 Q. The point is, wouldn't the results
7 replicated in the EMR study show up here? That is the
8 key question I am trying to get an answer to.

9 MR. SHALABY: A. Just to give my
10 understanding of these conferences and papers and
11 results; a paper published in May of 1991 does not
12 include information gathered in May of 1991. It
13 includes information gathered over a long period of
14 time leading up to that.

15 Most credible studies of this nature that
16 I would pay any attention to are studies that have
17 taken years to accumulate, several years to monitor and
18 reliable information that has taken time to gather,
19 time to test, time to verify the performance of the
20 products.

21 So the fact that it is published in May
22 doesn't mean that information wasn't available before
23 that, or isn't based on products that were available in
24 1989 or 1990 or so on.

25 So, the stamp date of a particular

1 publication doesn't mean it is brand-new information
2 that instant it was published.

3 The body of knowledge in this business
4 has been developed in the mid-'80s and the late '80s
5 and in the '90s with the new products that are coming
6 out of the east coast and we are familiar with all of
7 that. We put cost projections that assume a reduction
8 from the installed cost.

9 And the review of the recent publications
10 does not indicate to me that the analysis and the
11 conclusions reached are in any way different. If we
12 did this analysis again, I would suspect that the
13 results are going to be slightly different here and
14 there, but the major conclusion stands.

15 MR. GRENVILLE-WOOD: Well, Mr. Shalaby,
16 it is interesting that the Department of Energy, Mines
17 and Resources reaches a different conclusion.

18 Thank you very much, those are my
19 questions.

20 THE CHAIRMAN: Thank you.

21 I take it that no one else plans to
22 cross-examine this panel; am I correct in that?

23 Do you have some questions? Do your
24 questions arise out of Mr. Grenville-Wood's
25 examination?

1 DR. CONNELL: No, they don't.

2 MR. SHALABY: This was my take home exam.

3 I hope the rest of you had a good weekend, but I ...

4 (laughter)

5 MR. GRENVILLE-WOOD: I didn't either, Mr.
6 Shalaby.

7 EXAMINATION BY DR. CONNELL:

8 Q. Essentially, Mr. Shalaby, I was just
9 looking for some guidance and interpretation of Exhibit
10 309. If you are prepared to give us just a few minutes
11 of assistance, I would be grateful.

12 MR. SHALABY: A. Yes. I will give you a
13 minute to bring up the exhibit. It is Exhibit 309 that
14 the questions pertain to.

15 Q. It might be helpful to have 175
16 and/or 85 as well. I am prepared for you to have the
17 floor, Mr. Shalaby.

18 A. Yes, yes. There were three general
19 questions that you left with me on Thursday. The first
20 one was to provide a general commentary on the changes
21 that occurred in the August '91 incremental value
22 product, which is Exhibit 309. I will highlight the
23 big factors that have changed, the big impacts, and
24 leave a number of small factors aside not to cloud the
25 issue.

1 One of the important things that occurred
2 in the August '91 is that there was a lower load
3 forecast in the early '90s. So the period up to '95,
4 '96, there was a lower load forecast than we projected
5 before. That has the impact of lowering the
6 incremental values in the early years, '91 to '95, '96.

7 The second major development that was
8 included in that more recent exhibit is that it
9 includes the effect of the nuclear moratorium. And
10 what that does is introduces into our plans
11 fossil-fired generation, a combined cycle plant and an
12 integrated gasification combined cycle plant, a natural
13 gas-fired and coal-fired plant in the period 2003 to
14 2008. So, it is fossil-fired plant where in the
15 previous documents, there were nuclear-generated
16 electricity. So that is the second major change.

17 The third major change is that there is
18 an increased cost estimate for scrubbers. And that, as
19 you will recall, has an impact on the costs of
20 coal-generated electricity throughout the '90s and now
21 all the way to 2008. So, there is an added \$4 per
22 megawatthour acid gas control adder to remove
23 additional emissions from fossil generation.

24 Now, there is a notable thing that
25 happened and was not incorporated in those documents

1 and I would like to mention them; in that the documents
2 do not include the recent change in the demand
3 management or non-utility generation targets. So that
4 hasn't found its way yet into the incremental value
5 calculations. Those are the major changes.

6 Minor changes include things like use of
7 GDP deflator rather than CPI deflator. Inter-area
8 transmission costs are slightly higher. There are
9 larger amounts of committed non-utility generation and
10 demand management assumed in the project appraisal side
11 of the calculations. All of those are fairly minor in
12 their impact.

13 The big three are the lower load
14 forecast, the nuclear moratorium and its impact on
15 putting fossil generation in the 2000's and the
16 increased costs of scrubbers.

17 The impact is an increase of about 10 to
18 15 per cent in the avoided costs of the illustrative
19 examples that we presented in Panel 3. An 80 per cent
20 load factor non-utility generation, the Niagara
21 development, the R2000 house; those examples when we
22 run them with the new values, you will find the avoided
23 costs to be higher by something like 10 to 15 per cent.

24 That is the general commentary that I
25 would offer. There are two more things I want to talk

1 about. One is the change in format and one on whether
2 this is expected to be a trend or not.

3 Is there anything more on the general
4 commentary? Any other questions you have?

5 Q. No, that is all. I was just going to
6 follow up with the format question.

7 A. All right. On the format, we have
8 done four things that are different from Exhibit 175.
9 The first one is that the value of power for an option
10 that lasts for several years is not provided anymore.
11 The reason for that is to provide people the
12 flexibility to use more recent discount rates and more
13 recent escalation rates.

14 To provide the value of an option that
15 lasts for ten years, we inevitably lock in a certain
16 discount rate that was current at the time of
17 publishing our numbers.

18 If our product sits on the shelf for a
19 year or half a year and in the meantime a new set of
20 discount rates has been published, the user will know
21 that there is more current discount rates, but he has
22 got the answer locked in and cooked for him with a
23 previous discount rate. So, what we prefer to do is
24 give him the ingredients and he can use the discount
25 rates that are current at the time to calculate perhaps

1 a more accurate net present value at that time.

2 That was one reason for omitting the
3 portion that says an option lasting ten years or
4 fifteen years, what the present value of that would be.

5 The other reason for omitting that is
6 that we substituted additional information that was
7 more frequently requested. That information was to do
8 with the costs of transmission, regional transmission
9 and distribution. The new tables show the costs of
10 those components year by year together with the costs
11 of power. That was a frequently requested piece of
12 information that used to be in Exhibit 85. Now it
13 became part of that product that is circulated
14 throughout the corporation.

15 The third change in format that we
16 undertook was to provide the values in constant dollars
17 rather than escalated dollars. It used to be provided
18 in dollars of the year or escalated dollars. They now
19 provide it in constant dollars of 1991. And what that
20 does is, again, if escalation rates change, people can
21 apply different escalation rates.

22 And also, it is useful in indicating
23 whether the values are going up in real terms or is it
24 just inflation? You can look at the numbers and decide
25 whether there is an actual or, what we call, a real

1 increase in costs or just an inflationary increase in
2 costs.

3 And the final change that we introduced,
4 the fourth one, is we included an attachment that has
5 the discount rates and escalation rates. Again,
6 people wanted to know what did we assume exactly in our
7 calculations and we added that to the table.

8 [4:10 p.m.]

9 So that addresses the question about the
10 format changes and the rationale for it.

11 Q. If we could look at, let's us say,
12 Table 1, planning in the two documents, the column Cost
13 of Power in the new table then substitutes really for
14 the entire table as it was presented in --

15 A. Yes, it used to be a row. The first
16 row of the old table is the first column of the new
17 table.

18 Q. Yes.

19 A. It is expressed in dollars of 1991
20 rather than escalated dollars. These are the two
21 things that happened to it.

22 Q. Could I understand then that if I
23 were contemplating a NUG project that came on stream in
24 '96, I would use the new table of 44.34 figure, if I
25 expected to be in business for ten years I could simply

1 follow down the column to 2005?

2 A. Yes. And net present value that
3 stream of expenditures.

4 Q. Right.

5 A. That is the way to do it. That is
6 the way it was done in the old table.

7 Q. Thank you.

8 A. Move on to the third question, and
9 that was whether we expect the changes that have
10 happened, and namely the increases in the values, to be
11 a trend. That would be the most difficult question.

12 I think on reflection the answer is no,
13 we don't expect that to be a trend. It could prove to
14 be a trend but there is no reason at this time to think
15 that every successive prediction is going to be higher
16 than the one before it. There are things that can push
17 those values further up, and there are things that can
18 push these values down again.

19 There is a factor that we know that would
20 push these values down for sure next time around and
21 that is the increased targets for demand management and
22 non-utility generation. That will indicate a smaller
23 requirement for major supply and that would push the
24 incremental values lower.

25 Another factor that would push these

1 values down is the successive commitment to non-utility
2 generation projects and to demand management. The more
3 we have committed, the more the project appraisal
4 values are going to be lower, because we now don't have
5 to build as many CTUs or as many supply side options to
6 look after the gap. Once the NUGs and the demand
7 management projects are committed they reduce the
8 supply requirements. So, those factor will definitely
9 decrease the values in the future additions.

10 Factors that can go either way can be a
11 fuel cost. Fuel cost increases or decreases, then the
12 values can go up or down. Discount rates can go up or
13 down. Construction costs, estimates of construction
14 costs can go up or down as well, and whichever way they
15 swing, the incremental values will swing with them.

16 So, the brief answer is, they don't
17 necessarily indicate a trend.

18 Another factor to do with the increased
19 cost of scrubbers, one can imagine a scenario, if the
20 large amounts of non-utility generation and demand
21 management make the fossil emissions in the 90s and the
22 early 2000s a lot smaller than we thought maybe a year
23 ago, our coal-fired plant would not operate as hard as
24 we thought they will.

25 Maybe scrubbers may not be the most

1 appropriate acid gas control option any more. Maybe
2 fuel blending could be, and it could be lower in costs.

3 So, the costs of acid gas control is
4 really related to the amount of coal burned that we
5 expect, and if the coal burned we expect is smaller
6 now, the control strategy can be different and could be
7 lower in cost.

8 On the other hand, if the government
9 passes tighter acid gas regulations, costs can go up.

10 So, no trend. We will follow it step by
11 step. Some factors can push it this way, some factors
12 can push it the other way.

13 Q. Just to pick up your point about the
14 impact of the increased estimates for demand management
15 and NUGs. Let me assume that you are at the starting
16 point before commitments have been made. Doesn't
17 increasing those estimates drive the project appraisal
18 and the planning estimates apart?

19 A. They are driven apart, yes, that is
20 correct. But as commitments take place, they both move
21 lower. The supply gap is lower and therefore the
22 percentage of time, oil and gas on the margin is lower
23 and the values themselves are going to be lower in
24 magnitude.

25 The dollar value is lower on magnitude,

1 the megawatt gap may be larger. But the lower use of
2 expensive fossil fuels would result in lower energy
3 values.

4 Q. So, if you had in fact built those
5 changes into Exhibit 309, we might be looking at
6 project appraisal costs that were even higher than
7 those here represented?

8 A. No, they wouldn't be, because the
9 project appraisal values assume no demand management or
10 NUGs to speak of; only the committed ones which are
11 very small at this time.

12 The fact that we are relying on more
13 doesn't move the floor. We are building on a floor but
14 the floor is still where it is.

15 So, I think the project appraisal value
16 assumes complete reliance on supply and that will not
17 change very much.

18 I am thinking now of the planning value,
19 the planning value assumes a certain amount of
20 non-utility generation and demand management, and if we
21 increase that reliance, then the supply gap would
22 close, would be smaller. That would lower the planning
23 values as well,

24 So, I expect that if we took into account
25 the new targets in Exhibit 309, the project appraisal

1 value will not change very much, but the planning value
2 will go down a bit. That's what I would expect.

3 Q. I understand.

4 Mr. Chairman I have a different
5 question - I am content with this - unless others have
6 questions. I would like to ask a question about fuel
7 switching, if I may.

8 THE CHAIRMAN: Go ahead.

9 DR. CONNELL: Q. On the subject of fuel
10 switching, I recognize that we are in a state of
11 uncertainty, and I expect as time goes by we will see
12 some clarification of the scope of the program, the
13 objectives, and we will see you developing programs,
14 and then those programs will be put out in the field
15 and tested and we will begin to get some insight into
16 penetration rates. And then somewhere down the line,
17 presumably we would be in a position to make some
18 judgments about environmental impact, of course I am
19 thinking primarily here of CO(2).

20 My concern is that the chain of events
21 that I am describing, I suppose, is a minimum of five
22 years long by which time our report will have been put
23 to bed, we hope, and what I want to put to you, is how
24 can we come to some judgment about the potential or the
25 range of impacts of fuel switching on CO(2) load?

1 What I am thinking in particular, I
2 wonder, even at this point it would be illuminating to
3 have some estimates, say based on the natural gas model
4 alone, leaving aside the other possibilities that you
5 have raised. Making what might seem to be prudent
6 assumptions about the total impact of the programs you
7 are going to develop and the penetration.

8 If it is far too early to make such
9 guesses, when do you think we might have access to such
10 guesses?

11 A. I think the next best picture that
12 will emerge out of the rebalancing would be the
13 Christmas wrapping that Mr. Campbell is going to bring.

14 MR. B. CAMPBELL: I am getting a lot of
15 heat about making that promise.

16 MR. SHALABY: Yes. I always remind
17 people that there is an Easter and Christmas on January
18 6. If they don't make December 25, go for January 6.
19 It buys you another two weeks, Mr. Campbell.

20 That will be integrated information about
21 fuel use, marginal fuel use, emissions on the margin,
22 impact of fuel switching, could be determined more
23 accurately with that integrated picture.

24 So, I think we are looking into
25 rebalancing the plan first and then part of that would

1 be the fuel switching and the implications of that.

2 MR. BURKE: I am not sure whether my
3 memory serves was me correctly, but there is a study
4 that Mr. Shalaby says has actually been filed that
5 Hydro did on greenhouse gases and their impact, and I
6 believe there is a table in that study which takes
7 space heating right through to the customer use using
8 different sources of electricity for generation and, I
9 believe, direct combustion in furnaces. So that the
10 CO(2) consequences of different ways of heating can be
11 evaluated, that's on a per unit basis. I believe it's
12 done on a burner tip approach; that is, it doesn't look
13 at the full lifecycle effects of greenhouse gas
14 emissions, but simply the conventional ratios of the
15 CO(2) emissions per different fuels and so on.

16 I could try to find that table for you,
17 but it's I believe in that report?

18 MR. SHALABY: That report, if my memory
19 serves me was tabled with Panel 2 either as an
20 undertaking or interrogatory. We can do a little bit
21 of homework and get that.

22 I think the essence was captured to some
23 extent by Mr. Wilson in terms of if you burn fossil
24 fuel in a thermal plant, you will generate a lot more
25 CO(2) than if you burn the same fossil fuel in a home.

1 The question now becomes whether you are supplying
2 electricity from a non-fossil fuel and so on. And the
3 non-burner tip, for example, we are aware that natural
4 gas transportation, there are losses through the
5 system, there are methane losses at the gas well itself
6 and in transportation, and those are pretty potent
7 greenhouse gases themselves, 40 times as potent as
8 CO(2).

9 So, whether on a lifecycle a natural gas
10 burner tip in the house is or isn't more effective than
11 electricity generation, that is a more detailed
12 assessment, and I think we don't have that kind of
13 detail at this time.

14 DR. CONNELL: Then when we have the
15 rebalanced plan, and if we have specific questions
16 related to the demand management and load switching
17 side of it, I will just count on Mr. Campbell providing
18 the expertise to deal with those questions at that
19 time.

20 MR. B. CAMPBELL: That will be quite
21 satisfactory. You know how fond, Dr. Connell, we are
22 of your questions.

23 DR. CONNELL: Thank you.

24 THE CHAIRMAN: Do you have any
25 re-examination?

1 MR. B. CAMPBELL: Yes, I do, Mr.

2 Chairman, if that concludes the panels' questions.

3 THE CHAIRMAN: How long will you be?

4 MR. B. CAMPBELL: I expect, if we took 10
5 minutes, I could finish by five.

6 THE CHAIRMAN: Why don't we take a break.
7 I had forgotten we hadn't had a break this afternoon, I
8 was having such an interesting afternoon. (laughter)

9 MR. B. CAMPBELL: Mr. Chairman, as we
10 rise, obviously in preparing my questions for
11 re-examination, I have not distributed or drawn the
12 witnesses' attention to any materials that I intend to
13 refer to. If I could distribute them to them over the
14 break I think it would save us a few minutes
15 afterwards. Obviously I would not be discussing it
16 with them.

17 THE CHAIRMAN: That will be satisfactory.

18 THE REGISTRAR: The hearing will take a
19 recess.

20 ---Recess at 4:20 p.m.

21 ---On resuming at 4:39 p.m.

22 THE REGISTRAR: Come to order. The
23 hearing is again in session. Be seated, please.

24 THE CHAIRMAN: Mr. Campbell?

25 MR. B. CAMPBELL: Thank you, Mr.

1 Chairman.

2 RE-DIRECT EXAMINATION BY MR. B. CAMPBELL:

3 Q. Mr. Wilson, I think my first question
4 is for you and it arises from cross-examination by Mr.
5 Poch for CEG.

6 At approximately page 9055 of the
7 transcript, Mr. Poch referred in a question to you to
8 Exhibit 271, page 3.

9 Could you turn that up, please?

10 MR. WILSON: A. Yes, I have it.

11 Q. Now, when he was asking the question,
12 he read to you the first sentence of the first complete
13 paragraph on the page hand-numbered 3 on Exhibit 271.
14 It starts out, 'although the aim of the no-losers
15 test'; do you see that?

16 A. Yes, I do.

17 Q. Having read the first paragraph, he
18 then continued by skipping the balance of that
19 paragraph and moving to the second complete paragraph.

20 I would ask you, please, to complete the
21 thought that was started with the balance of the second
22 paragraph and first read in the balance of that
23 paragraph.

24 A. The second sentence of that paragraph
25 goes on to explain that there are other ways of

1 treating fairly. And it says:

2 For example, conservation programs can
3 be designed to make them widely available
4 to most ratepayers in all customer
5 groups. Such programs can also assist
6 customers in installing conservation
7 measures at less than full cost
8 reimbursement. While there are
9 significant barriers that keep customers
10 from voluntarily installing all the
11 conservation measures that may be
12 desirable from the utility's perspective,
13 it is evident that consumers will benefit
14 from the reduction in their bills as a
15 result of increased efficiency achieved
16 through conservation measures.

17 Because of these benefits, it is also
18 reasonable to assume that most consumers
19 will be willing to share in some portion
20 of the cost of installing the desired
21 conservation measures. Through this
22 sharing, the impact of the utility's
23 rates can be minimized and the perception
24 of fairness by non-participants can be
25 substantially enhanced.

1 Q. Now, Mr. Wilson, my question to you
2 is this: That is a excerpt as is shown in Mr. Poch's
3 material from the report of the Electricity Planning
4 Technical Advisory Panel to the Minister of Energy and
5 I would ask whether you agree with the conclusions set
6 forth in the last sentence of that paragraph.

7 A. Yes, I do. That is the essence of
8 our approach to demand management.

9 Q. Now, Mr. Shalaby, if you could pull
10 up Exhibit 3, please, the Demand/Supply Plan report.

11 In the course of the cross-examination on
12 September 16th, I believe was the date, by Mr.
13 Rosenberg for CAC, he questioned you starting at about
14 page 10417 with respect to a number of factors that
15 have changed since the publication of the Demand/Supply
16 Report.

17 Do you recall generally those questions?

18 MR. SHALABY: A. You mean the very
19 general terms, yes.

20 Q. For instance, he asked you at page
21 10417 or perhaps at 10418 - I guess this was actually
22 directed at Mr. Wilson - that the encouragement or
23 promotion of alternative fuel use was not a priority of
24 Ontario Hydro at that time. Mr. Wilson, you agreed
25 with him to the extent of not providing incentives.

1 My question doesn't really depend on the
2 transcript. It has to do with this question of changes
3 since the DSP.

4 I would ask you, Mr. Shalaby, to direct
5 your attention to page 2-1 of the Demand/Supply
6 Planning report. And I would ask to you read from the
7 right column the last two paragraphs of that report.

8 A. Each year, the data base on actual
9 customer loads is updated and new
10 forecasts developed for economic and load
11 growth and other factors. Similarly, the
12 options are updated concerning cost
13 experience, changing technology and new
14 environmental requirements. The plans
15 are then adjusted to take into account
16 the updated forecasts and options. The
17 process of updating, reviewing and
18 adjusting plans is a continuous process.

19 The last paragraph reads:

20 While recognizing that adjustments
21 will be necessary from time to time,
22 long-term planning must give a firm
23 direction for future actions. The
24 Demand/Supply Plan meets this objective.

25 Q. Mr. Shalaby, my question to you is

1 whether you have any reason to change that opinion
2 expressed in the Demand/Supply Plan Report; that is,
3 that general conclusion as opposed to the specifics of
4 a particular plan.

5 A. No, there is no reason to change
6 that.

7 Q. Mr. MacLellan, my next question is
8 for you, and again, it arises, I believe, out of
9 cross-examination by Mr. Rosenberg I believe on the
10 morning of the 17th. you will recall from time to time
11 discussing with him the content of various Ontario
12 Hydro pamphlets?

13 MR. MacLELLAN: A. Yes, I do.

14 Q. And you pointed out that there were
15 more recent pamphlets and in that regard, you provided
16 Exhibits 300 and 301?

17 A. Correct.

18 Q. Now, with respect to certain of the
19 matters raised by Mr. Rosenberg, they were never then
20 referred to, and I would ask you to read in the first
21 two paragraphs of Exhibit 301 by way of example.

22 A. The expensive heating in maintaining
23 our homes in addition to our concern for
24 safeguarding the environment have helped
25 us appreciate the importance of using

1 energy wisely. Ontario Hydro is
2 committed to promoting the efficient use
3 of energy. Brochures such as this one
4 can help you make the wisest decision on
5 the use of electricity. Programs
6 offering you a financial incentive to
7 purchase an energy-efficient home can
8 make the decision a little easier.

9 Q. Now, are those messages with respect
10 to the environment and the commitment to promoting the
11 efficient use of energy messages which Ontario Hydro
12 will be continuing to emphasize in its residential
13 literature?

14 A. Yes. We want to make sure that those
15 messages are throughout all of our residential
16 literature.

17 Q. Now, Mr. Shalaby, coming back to you
18 and as opposed to preparing a thesis over the weekend,
19 I guess this is the oral part of the PhD. exam. I want
20 to direct you to two comments and I am going to ask you
21 if you would grab the transcript, please. I believe it
22 Volume 62. They were comments you made during the
23 course of the examination by Mr. Mondrow and I am going
24 to direct your attention to two passages; the first is
25 at page 11115 where you are speaking of adding more

1 load shifting contracts; would that be a benefit to the
2 system?

3 At lines 12 and 13, you make the comment:

4 "But that benefit is reduced the more contracts you
5 sign up."

6 You make that point again at page 11149
7 where in response to a question about more load
8 shifting being useful in the circumstances posited to
9 you, you answered: "Conceptually, yes. But of less
10 value though."

11 What I would like you to do, please, is
12 to explain why there is a declining benefit to
13 interruptible power as you add increasing amounts to
14 the system.

15 Can you explain the rationale or why it
16 is that you express the view you have about it being of
17 a declining value or benefit to the system?

18 MR. SHALABY: A. Well, if you have a
19 very large block of interruptible customers, one of two
20 things can happen: Either you don't plan generation to
21 serve them and they will be interrupted -- they have to
22 be interrupted for long periods of time, and that would
23 be outside of the contract validity that we have at
24 these days.

25 So, if you don't have generation, they

1 will not be useful in restoring reliability because you
2 have to interrupt them beyond contract boundaries.
3 That is one aspect of why they will not be of much
4 value if they are in large size and have to be
5 interrupted frequently.

6 The other thing that can happen is if you
7 have a large amount of interruptible customers and you
8 have adequate generation reserves, in that instant, you
9 don't need to interrupt them very often.

10 Like, if today --

11 Q. I can see I haven't been specific
12 enough in my question, Mr. Shalaby, and I will be more
13 specific.

14 A. Maybe do that.

15 Q. You expressed in the two excerpts
16 that I read to you that there was a change in value as
17 you added more - or, at least I understand your answers
18 to be saying there is a change in value from the time
19 you add the first amount of interruptible to the time
20 you add a much later amount of interruptible.

21 A. All right.

22 Q. Why is it that there is a difference
23 in value between the early amounts you add on - that is
24 the value to the system of the early amounts you add
25 on - versus the later amounts you add on where you are

1 adding, say, 10 megawatts on to a 1200 or a thousand
2 that you have already achieved as opposed to the first
3 10 megawatts?

4 A. The simple answer is that you will
5 use them less often. They will become a contract that
6 would relieve system contingencies less often. That is
7 the simple answer, but that is only in the short term,
8 in the first four or five years.

9 If tomorrow morning 10,000 megawatts of
10 interruptibles sign up, we will not be using them for a
11 long, long period of time so they will not have much
12 value to us.

13 Now, as time develops into the long-term,
14 they can start to change our generation plans but that
15 was the point I started with.

16 But the short answer is that you will not
17 resort to interrupting a very large block of customers
18 very often, and for that reason, they will not be of
19 value to us.

20 Q. Can you relate that value to if you
21 calculated a theoretical amount where your thermal load
22 curve was perfectly flat? Can you relate that as you
23 approach that situation with your interruptible again
24 as opposed to your early chunk of interruptible, and
25 can you relate that answer to the flattening of the

1 thermal load curve through this mechanism? And if you
2 can't, just say so.

3 A. The interruptibles become of most
4 value when the system is under stress or the generation
5 capability is below the demands on it. That often
6 occurs at peak periods normally during the daylight
7 hours of cold winter days or very hot summer days.

8 If you have load shifting in addition to
9 interruptions, that could mean that the peak is reduced
10 and the stress during these time periods is less than
11 it would otherwise be. I guess you may be looking for
12 the interaction between load shifting and
13 interruptions.

14 Q. All right. That was going to be --

15 A. Interruptible loads.

16 Q. Exactly my next question was: Can
17 you go through that same analysis for amounts of load
18 that are shifted? Can you explain why you have
19 expressed the view that as you shift load into a
20 valley, the first chunk is more valuable than the later
21 chunk?

22 A. Yes. The first chunk could get rid
23 of your most expensive fuel during the peak; for
24 example, if you are operating an oil-fired unit for 200
25 megawatts during the peak in a certain day, if you

1 shifted that 200 megawatts near the valley, you avoid
2 operating that oil-fired station and that is quite a
3 bit of value.

4 [4:55 p.m.]

5 If you shift the next 200 megawatts, you
6 would not have had an oil-fired station operating at
7 that time, you would have a coal-fired station to be
8 shifted, and that is of less value than shifting an
9 oil-fired station.

10 So, conceptually, the very first slice is
11 avoiding the most expensive type of generation, the
12 second slice avoids generation that is less expensive
13 than that.

14 As you proceed you eventually will be
15 shifting from the peak a certain fuel and meet it in
16 the valley with the very same fuel, and for that
17 reason, you are neither here nor there in terms of
18 energy value. You may be optimizing a bit on your
19 capacity use, but there will not be any energy cost
20 differential between one time period and another.

21 Q. Thank you.

22 Ms. Fraser, I think this is to you, and
23 it may have been clarified, but just to be safe I want
24 to be sure.

25 Do you recall the discussion with Mr.

1 Mark regarding the megawatt tracking system?

2 MS. FRASER: A. Yes, I do.

3 Q. Do you recall a discussion of the
4 verification process involving as part of that the
5 Ernst & Young audit?

6 A. Yes, I do.

7 Q. And do you recall the discussion of
8 net impact numbers that flowed from that?

9 A. Yes.

10 Q. What are the net impact numbers based
11 on? What set of numbers are the net impact numbers
12 themselves calculated from when you are looking back at
13 the megawatt tracking system as a first cut and then
14 the audited numbers as the second cut?

15 A. They start from the megawatt tracking
16 system which includes both field reports and the
17 financial incentives data base which track the actual
18 incentives that we pay out for megawatt or kilowatthour
19 savings. Those numbers are then at the customer level
20 and then they are transferred into a 16 hour winter
21 megawatt number. The verification process then takes
22 place at the end of the year, and that verification
23 process is done, in the case of 1990 study, it was done
24 by Ernst & Young, and that process then makes sure that
25 the results that came through the megawatt tracking

1 study were done -- essentially it's a verification
2 process and that's what we call it.

3 That ends up with a number that then
4 feeds into an analysis that's done in Mr. Wilson's
5 group in consultation with both program staff,
6 monitoring staff, and the load forecast staff, in terms
7 of looking at then the net impact to determine what
8 would have been included in the load forecast in the
9 first place in terms of natural conservation which was
10 assumed to be in the basic, what is the permanence of
11 the load saving in terms of the particular options that
12 you are looking at. What is the effect basically on
13 the load that's the very net effect. So, that is when
14 you get to sort of the final number that you are
15 dealing with. That's the process.

16 Q. Am I correct in understanding that
17 the net impact numbers then are worked from the
18 verified numbers?

19 A. That's correct.

20 Q. Thank you. I think I will ask this
21 question of both you, Ms. Fraser and Mr. Wilson and Mr.
22 MacLellan, and it is simply this: Do customer service
23 activities include demand management activities?

24 First you, Ms. Fraser.

25 A. Yes, they do.

1 Q. Mr. MacLellan, do you agree with
2 that?

3 MR. MacLELLAN: A. Yes, I do.

4 Q. Do you agree with that, Mr. Wilson?

5 MR. WILSON: A. Yes, I do.

6 Q. Now, at page 11431 of the transcript,
7 Mr. Mark described municipal utilities as having a
8 very, very strong, indeed, almost a passionate
9 commitment to quality customer service.

10 Do you recall that exchange, Ms. Fraser?

11 MS. FRASER: A. Yes, I do.

12 Q. In your opinion, is it consistent
13 with that passion for municipal utilities to say that
14 it will only do demand management activities if Ontario
15 Hydro pays the municipal utility overheads associated
16 with providing demand management services to their
17 customers?

18 A. No, I don't.

19 Q. Mr. MacLellan, would your answer to
20 that question be the same?

21 MR. MacLELLAN: A. Yes, it would be the
22 same.

23 Q. Mr. Wilson, would your answer be the
24 same?

25 MR. WILSON: A. Yes, I agree.

1 Q. Now, I want to then turn your
2 attention to Exhibit 314, which was the Municipal
3 Electric Association's bundle of materials used on
4 cross-examination, and in particular, pages 92 and 93.

5 Do you have Exhibit 314? I can lend you
6 my copy if you want.

7 I don't think it is necessary for the
8 Board to turn it up.

9 Now Mr. Wilson, you have in front of you
10 Exhibit 314?

11 A. Yes, I do.

12 Q. Could you turn to pages 92 and 93,
13 please.

14 A. Yes, I have that.

15 Q. Am I correct in my understanding that
16 pages 92 and 93 are pages 2 and then page 5 of a report
17 entitled Study of 1990 Municipal Utilities, Service
18 Relationship Survey Conducted in December of 1990, and
19 included in Interrogatory 4.9.20?

20 A. Yes, I believe that's right.

21 MR. B. CAMPBELL: Now, I have produced to
22 you, and I would you to have marked as the next
23 exhibit, Mr. Chairman, the missing pages 3 and 4 from
24 between pages 2 and 5.

25 THE REGISTRAR: That will be No. 317.

1 ---EXHIBIT NO. 317: Page 2 and 3 from "Study of 1990
2 Municipal Utilities, Service Relationship
3 Survey, conducted in December of 1990.

4 MR. B. CAMPBELL: Q. Now, Mr. Wilson, I
5 want to direct your attention in particular to the
6 bottom of the missing page 4. Am I correct in my
7 understanding that that speaks directly to the views of
8 the topic of this panel, that is energy management
9 services?

10 MR. WILSON: A. Yes, it does.

11 Q. Would you please read the first
12 conclusion that was omitted from the excerpts from this
13 study filed by the MEA? Could you just read the
14 first...

15 A. The first bullet or conclusion reads:

16 "The majority of utilities are
17 satisfied with the energy management
18 services offered to date, but they
19 believe that increased input and
20 communications would make the
21 implementation of the programs more
22 effective."

23 Q. All right. And the commentary is on
24 the balance of that page.

25 Mr. Chairman, this section does continue
 on to page 5 that was provided, so that is not the end

1 of that section. I don't want to be taken as omitting
2 anything.

3 Mr. Wilson, against that conclusion, I
4 want to again turn your attention to an excerpt from
5 your business plan that I have provided you with.

6 Mr. Chairman, there is one page that has
7 on it on one side, "Energy Management Function Business
8 Plan, 1991 - 1995, March 1991. It's an excerpt from
9 Interrogatory 4.7.222.

10 This page, if I could have the next
11 exhibit number, there is an excerpt on the back that I
12 would like to refer to.

13 THE REGISTRAR: No. 318.

14 ---EXHIBIT NO. 318: Page 4 of "Energy Management
15 Function Business Plan, 1991 - 1995,
16 March 1991.

16 THE CHAIRMAN: Is this on the same line
17 of re-examination as the previous questions?

18 MR. B. CAMPBELL: Yes, it is. It arises
19 directly out of that survey result, Mr. Chairman.

20 Q. Now, Mr. Wilson, perhaps you could
21 just briefly advise what a business plan represents,
22 just briefly.

23 MR. WILSON: A. Business plans are a
24 five year outline of our specific initiatives to be
25 successful in demand management.

1 Q. And does it provide you with
2 strategic direction and matters of that type?

3 A. It doesn't provide all the details
4 but provides the primary focus that is supposed to
5 guide the behaviour and priorities of people in the
6 energy management branch.

7 Q. I would like to direct your attention
8 to the item which is No. 1.7.2, at the bottom of the
9 second page of Exhibit 318, and ask you to read that
10 paragraph.

11 A. The paragraph reads:

12 "Energy management will be making a
13 substantial effort to get municipal
14 utilities involved in program delivery.
15 Initiatives in this plan will help them
16 obtain the training and experience they
17 need to enhance their customer service
18 activities with a full range of energy
19 management programs. Mechanisms for
20 assisting individual municipal utilities
21 to ensure their participation are being
22 considered."

23 Q. My question to you, Mr. Wilson, is
24 that initiative set out in the business plan of March
25 '91 in your opinion responsive to the concerns

1 illustrated or spoken to at the excerpt from page 4 of
2 the survey that I had you read previously?

3 A. Yes, it's both responsive and it is a
4 specific response to that.

5 THE CHAIRMAN: Is that last document
6 marked as an exhibit?

7 MR. B. CAMPBELL: I believe it was marked
8 as Exhibit 318.

9 THE CHAIRMAN: Have we entered 318 as an
10 exhibit? We have, all right.

11 MR. B. CAMPBELL: Mr. Chairman, just to
12 be complete on this, that is the end of Section 1.7.2
13 on the excerpt that I have given you, but the complete
14 document could be found in Interrogatory 4.7.222.

15 Q. Mr. Shalaby, I think I will try this
16 one on you, and it relates to peak versus off-peak
17 energy. There has been various testimony, yourself and
18 others have given, that the peak period is the 16 hour
19 period that's been spoken of?

20 MR. SHALABY: A. Yes.

21 Q. And the off-peak portion of - and I
22 am speaking of work days - the off-peak portion of the
23 day is the eight hours eleven at night to seven in the
24 morning, I believe?

25 A. Yes. And all of the weekends and

1 holidays are off-peak.

2 Q. I would just like to deal with the
3 weekdays for the purposes this question.

4 My question is: In the circumstance
5 where you shift the same amount of energy from the peak
6 period to the off-peak period on a week day, how would
7 the average demand by the customer compare for the 8
8 hour off-peak period versus the 16 hour on peak period
9 if the same energy was used in each case?

10 A. It would be twice as much.

11 THE CHAIRMAN: Where does that fit into
12 re-examination?

13 MR. B. CAMPBELL: It's a simple
14 clarification of a point that I was concerned might be
15 left in some doubt, Mr. Chairman, that it had not
16 been -- in all of this discussion of peak and off-peak,
17 I don't know that that relationship had been spoken to
18 precisely, and I was concerned that it needed a little
19 clarification, which as I understand it anyway, is
20 proper redirect.

21 THE CHAIRMAN: All right.

22 DR. CONNELL: I take the witnesses'
23 evidence is, 16 divided by 8 is 2; is that correct?
24 (laughter)

25 MR. B. CAMPBELL: It shows their

1 remarkable perspicacity, I agree.

2 MS. FRASER: That's why we have a system
3 planner on the panel. (laughter)

4 MR. SHALABY: Who attended the University
5 of Toronto for a degree as well. (laughter)

6 MR. B. CAMPBELL: I have warned you, Mr.
7 Shalaby, against toytoying to the panel.

8 Q. Now, Mr. Harper, I think this is for
9 you. Exhibit 285 in these proceedings was a letter
10 from Premier Rae to the Chairman and Chief Executive
11 Officer of Quebec and Ontario Paper. Do you have that
12 letter before you?

13 [5:10 p.m.]

14 MR. HARPER: A. Yes, I do.

15 Q. That letter makes the point strongly
16 in the second paragraph in dealing with the principles
17 used to set Hydro's rates; that to quote from the
18 letter:

19 The power at cost principle has served
20 this province well. The government has
21 no intention of abandoning this
22 principle.

23 Now, in speaking of that principle, in
24 your opinion, is the ability of a rate structure to
25 track costs accurately an important consideration in

1 applying the power at cost principle?

2 A. Yes, it is.

3 MR. B. CAMPBELL: Mr. Chairman, those are
4 all my questions of this panel.

5 As I have in other panels but I would
6 like to make a particular point with this panel, I
7 would like to have recognized on the record the
8 enormous effort and contribution that I believe these
9 panel members have made in both preparing themselves to
10 display the kind of knowledge that they have and
11 regardless of your conclusions, the enormous effort
12 that they have put into this. I can advise you, you
13 have really only seen the tip of the iceberg of the
14 effort that these six people have made.

15 There are two other people here today
16 that I want to also recognize particularly on the
17 record because they, through thick and thin, long days,
18 weekends, months, what I am sure at times felt like
19 years, managed the interrogatory process. And those
20 two people are Ms. Nada Davidovic who is the farthest
21 on my left at this panel and behind, at the table
22 closest to me, Mr. Bob McRae.

23 And I can tell you that it would have
24 been impossible to do the effort on interrogatories
25 that has been done for this panel without the enormous

1 effort that these people put in. And as I say,
2 throughout thick and thin, from bleak days to happy
3 days, they carried on like troopers.

4 And again, I wish to, in particular,
5 record their efforts. There is a huge number of people
6 behind them that did writing and everything else and I
7 can't begin to name them all, but I did want to draw
8 particular attention to those two. Thank you, Mr.
9 Chairman.

10 THE CHAIRMAN: Thank you. Thank you,
11 Panel.

12 We are going to start the NUG panel
13 tomorrow morning at 10:30 - 10:30 tomorrow morning, not
14 10:00, 10:30. We are adjourned until that time.

15 MR. B. CAMPBELL: Thank you, Mr.
16 Chairman.

17 THE REGISTRAR: This hearing is adjourned
18 until 10:30 tomorrow morning.

19 ---Whereupon the hearing was adjourned at 5:15 p.m, to
20 be reconvened on Tuesday, the 1st of October,
1991, at 10:30 a.m.

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25 JAS/JB [c. copyright 1985]

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